



Knowledge About Early Diagnosis of Breast Cancer, and Breast Cancer Risks Among Syrian Immigrants and Turkish Citizens: A Comparative, Cross-Sectional Study

Hatice Serap Koçak¹, Ecem Çiçek Gümüş²

¹Department of Public Health Nursing, Gaziantep University Faculty of Health Sciences, Gaziantep, Turkey

²Departments of Public Health Nursing, University of Bartın Faculty of Health Science, Bartın, Turkey

ABSTRACT

Objective: Cancer affects people regardless of being native or immigrants from developing countries. The most common form of cancer amongst displaced and immigrant women is breast cancer. This study provided a cultural comparison of early diagnosis, screening and breast cancer risks among Syrian immigrants and Turkish citizens in Turkey.

Materials and Methods: The study was performed with a descriptive, comparative and cross-sectional design with 589 women (Turkish=302, Syrian=287). A Personal Information Form and Breast Cancer Risk Assessment Form were used for data collection.

Results: The knowledge of Syrian immigrant women and behavior regarding breast self-examination, clinical breast examination, and screening with a mammogram were significantly lower than those of Turkish women ($p<0.05$). In addition, Syrian women's information about general breast cancer early diagnosis and screening was poorer. However, the mean breast cancer risk score was higher in Turkish women ($p<0.05$).

Conclusion: The data highlighted the importance of understanding locally specific barriers to breast cancer screening among immigrants and developing national programs to increase cancer education as a means of prevention.

Keywords: Breast cancer risk; early diagnosis; immigrant

Cite this article as: Koçak HS, Gümüş EÇ. Knowledge About Early Diagnosis of Breast Cancer, and Breast Cancer Risks Among Syrian Immigrants and Turkish Citizens: A Comparative, Cross-Sectional Study. Eur J Breast Health 2023; 19(3): 222-228

Key Points

- Early diagnosis is important in breast cancer, which is one of the most common cancers among women.
- Breast cancer early diagnosis behavior is less common among Syrian women.
- Determining the risk of breast cancer in women is important in terms of identifying priority groups for early diagnosis.

Introduction

Cancer is one of the most common and yet neglected non-communicable diseases (NCDs) among immigrants who have migrated from their own country (1). Cancer is also a growing problem among immigrants from low-income countries, and breast cancer is the most common type of cancer among immigrant women (2-4). Immigrant women experience problems accessing healthcare services as they often do not know the language of the place they have migrated to and may have little understanding of the pathways to access healthcare services (5). Patient-mediated barriers to healthcare seeking for breast cancer include many factors, such as educational level, health literacy, lifestyle behaviors and employment status, which have an effect on knowledge and awareness of breast health and symptoms and signs of breast cancer (1, 2, 6).

More than 6.2 million people took refuge in neighboring countries due to the Syrian civil war (7). In Turkey, 3,638,420 Syrian immigrants were included in the latest data (8). Turkey faces the challenge of providing healthcare to this large and vulnerable population. In a study conducted with 38,243 Syrians in Turkey between 2012 and 2015, it was reported that breast cancer was the most common form of cancer with a rate of 28.21% (9). There is little data on the breast cancer profile of immigrant populations and no epidemiological studies have been conducted with immigrants (10). In addition, breast cancer is the most common type of cancer among immigrants from the Middle East (11). Thus, it is important to determine the risk of breast cancer, which is an important problem in terms of public health, and early diagnosis behaviors. Evaluating and comparing the breast cancer knowledge level and screening behavior of Turkish citizens and

Syrian refugees may help to understand specific barriers preventing both populations from taking appropriate action for their own health.

The aim of this study was to provide a cultural comparison of breast cancer early diagnosis, screening and breast cancer risks among Syrian immigrants and Turkish citizens living in Turkey.

Materials and Methods

Study Design

This study was a descriptive, comparative and cross-sectional study. The research was conducted between March 2019 and February 2020. The population of the study was composed of women living in ten Family Health Center regions in the city of Gaziantep. To determine the sample size, G*Power analysis was performed. The study sample was calculated as 585 women with 95% reliability and 80% power, and 589 women were contacted at the data collection stage. For Turkish citizens and Syrian immigrants, separate samples were not calculated, and the total sample was used. Gaziantep's total population is 2,154,051 and there are 461,149 Syrian immigrants. Therefore, approximately one in five people in Gaziantep is a Syrian immigrant. Syrian immigrants attend all Family Health Centers.

Inclusion Criteria

Women who were not diagnosed with breast cancer, were aged 20 and over, could speak and understand Turkish at a sufficient level to communicate with the researcher, and volunteered to participate in the study were included in the study.

Data Collection

The data were collected by the researchers through face-to-face interviews with women who applied to the Family Health Center. A Personal Information Form and Breast Cancer Risk Assessment Form were used for data collection.

Personal Information Form: This form consists of 19 questions about demographic and descriptive information about the participants (12-14).

Breast Cancer Risk Assessment Tool: The Breast Cancer Risk Assessment Tool, designed by the American Cancer Society, includes 20 items and six dimensions, which are age, familial breast cancer history, personal breast cancer history, age of giving birth, age of menstruation and body structure. A score below 200 is considered low risk, a score between 201 and 300 is considered moderate risk, a score between 301 and 400 is considered high risk, and a score over 400 is considered the highest risk. Each dimension includes different risk factors for breast cancer and the scoring is done accordingly (15, 16) (Table 1).

Ethical Consideration

Before commencement of the research, ethical approval was obtained from the Clinical Research Ethics Committee of Gaziantep University (decision no: 2019/93; date: 13.03.2019). Institutional approval was obtained from the Gaziantep Provincial Health Directorate. Informed consent of the participants was obtained during the study.

Statistical Analysis

Data were evaluated using SPSS, version 21.00 (IBM Inc., Armonk, NY, USA). The conformity of the data to normal distribution was

evaluated with the Shapiro-Wilk test. In the evaluation of the data, percentage, arithmetic mean and standard deviation were used as descriptive statistics. Chi-square test was used to compare information about breast self-exam (BSE), clinical breast exam (CBE) and mammography. Independent groups t-test was used to compare mean risk scores. A *p* value lower than 0.05 was considered statistically significant.

Results

Of the 589 women who participated in the study, 51.3% were Turkish and 48.7% were Syrian. The great majority of the Turkish participants had received primary education and above. The large majority of the Syrian participants, however, were only literate or primary school graduates. In terms of marital status, 75.8% of the Turkish participants and 88.5% of the Syrian participants were married. A large percentage of the women were housewives, while the percentage of working women was greater among Turkish participants (32.1%). The income status of Turkish participants was found to be higher (Table 2).

Table 1. Breast cancer risk assessment tool

Risk factor	Category score
Age	
<30	10
30-40	30
41-50	75
51-60	100
≥60	125
Familial breast cancer history	
No	0
One maternal and/or paternal aunt/grandmother	50
Mother or sister	100
Mother and sister	150
Mother and two sisters	200
Personal breast cancer history	
No	0
Yes	300
Age of giving birth	
First birth before the age 30	0
First birth after the age 30	25
No child	50
Menstruation age	
≥15	15
12-14	25
≤11	50
Body structure	
Underweight	15
Normal	25
Overweight	50

When questioned about BSE, 62.3% of Turkish participants and 36.2% of Syrian participants knew how to perform a BSE and this was a significant difference ($p<0.05$). The percentage of Syrian women who had received BSE education was lower, that the number of those performing BSE was smaller, and that the frequency of those performing BSE correctly was significantly lower than that of Turkish women ($p<0.05$) (Table 2).

On investigating knowledge of CBE, 31.5% of Turkish participants and only 3.5% of Syrian participants had knowledge of the CBE, which was significantly different ($p<0.05$). It was found that the number of Syrian women who had had CBE done was low and that their knowledge of the frequency with which CBE should be carried out was significantly lower than Turkish women ($p<0.05$) (Table 3). Rates of knowledge about mammography were significantly ($p<0.05$) higher among Turkish participants (74.5%) compared to Syrian participants (20.9%). More than five times as many Turkish participants (16.6%) had had mammography screening compared to only 3.5% of Syrian women ($p<0.05$). Rates of women knowing the correct time to have mammography screening were 39.7% in Turkish participants and 11.5% in Syrian participants, and this difference was again significant ($p<0.05$) (Table 3).

The mean risk scores of participants based on age were 39.88 ± 36.81 in Turkish participants and 33.78 ± 27.42 in Syrian participants. Syrian participants' age risk scores were found to be significantly lower ($p<0.05$). When family history was evaluated, there was a high rate in both groups for the response "no cancer at all" and that there were no background risks. Although a high percentage of women in both

groups had given birth to their first child "before the age of 30", Syrian participants (93%) had lower risk scores in terms of age at first birth. Mean birth risk scores were 13.99 ± 22.06 in Turkish participants and 3.31 ± 12.28 in Syrian participants ($p<0.05$). In terms of participants' menstruation risk scores, the total risk score was significantly lower in Turkish participants ($p<0.05$). Mean body type risk scores of groups were 33.28 ± 14.65 in Turkish participants and 30.96 ± 14.08 in Syrian participants, and this was also significantly different (Table 4).

When total risk scores were evaluated, 90.1% of Turkish participants and 91.6% of Syrian participants were included in the "low risk" group. However, the total mean risk score was lower in Syrian participants and that this lower rate was significantly different ($p<0.05$) (Table 4).

Discussion and Conclusion

In this study, the knowledge about, and having a history of undergoing breast examination (BSE and CBE) and mammography among 589 Turkish and Syrian immigrant women who attended Family Health Centers was evaluated in relation to breast cancer risk.

Since there is no effective prevention for breast cancer, early diagnosis of the disease is a very important step in management. BSE, CBE and mammography are screening methods that should be performed in order to make an early diagnosis of breast cancer. Within the scope of the cancer prevention and screening program published by the Ministry of Health, it is recommended that women over the age of 20 perform a BSE at least once a month (17). The behavior, knowledge and education of Turkish women participants in terms of performing BSE were significantly better than those of Syrian women. BSE is recommended

Table 2. Descriptive characteristics of the participants

Variable(s)	Turkish (n / %)		Syrian (n / %)		
	n	%	n	%	
	302	51.3	287	48.7	
Education	Illiterate or primary school	125	41.3	223	77.7
	Middle school	31	10.3	46	16.0
	High school	64	21.2	14	4.9
	University	82	27.2	4	1.4
Marital status	Married	229	75.8	254	88.5
	Single	73	24.2	33	11.5
Employment status	Housewife	205	67.9	259	90.2
	Working	97	32.1	28	9.8
Income status	Less than expenses	105	34.8	206	71.8
	More than expenses	45	14.9	15	5.2
	Equal to expenses	152	50.3	66	23.0
BMI groups	18.8–24.5	87	28.8	91	31.7
	25–29.9	138	45.7	116	40.4
	≥30	74	24.5	80	27.9
Breast disease	Yes	5	1.7	5	1.7
	No	297	98.3	282	98.3
	Turkish	Syrian	t	p	
Average age at first birth	21.25	18.37	10.665	<0.001	
Average first menstrual age	13.28	13.22	0.748	0.455	

t: independent samples t-test; BMI: body mass index

for the detection of palpable breast tumors, and it has been reported to be effective in increasing awareness of breast health in women, especially in developing and underdeveloped countries (17). In three different studies conducted in Turkey, the frequency of performing BSE once a month was reported as 8.6%, 19.7% and 29%, respectively (13-15). In contrast, Özoğul and Sucu Dağ (14) reported that 74.0% of the participants in their study performed BSE, while 55.4% of the women in a study in Malaysia had prior knowledge of BSE (15), and in a study conducted in Cameroon, three out of four of the participants had heard of BSE, but that only 60% performed BSE (16). In Nigeria, approximately half of the respondents (58.2%) had heard of BSE, whereas only 5.3% stated that they performed BSE monthly, as recommended (17). In the present study, twice as many Turkish women as Syrian women knew about and performed BSE. This difference may be because Turkish women found it easier to access breast health information and did not have language problems. A further contributing factor may have been their higher education and income levels.

The Turkish Ministry of Health also recommends that women aged over 20 have a CBE done once every two years, while women aged between 40–69 should have a CBE done annually (17). Amongst the participants in the present study participants' knowledge related to the

age at which and the frequency with which women should have a CBE was inadequate, but that a significantly higher percentage of Turkish participants gave correct answers. Worryingly, a high percentage of women in both groups did not have CBE done. The reported rate of CBE in Turkey varied between 7.1%, 15.5%, 39%, and 63.75% (12-14). Turkish Ministry of Health data showed that 60.9% of women in Turkey had never had CBE (18). Kwok et al. (19) reported the annual rate of CBE among Arabic women in Australia to be 21.4%. In the present study, it can be argued that the low rate of undergoing CBE was because the participants were younger and that they did not have a history of breast tumors. Furthermore, it can be suggested that Syrian women's lack of knowledge and their cultural structure had a significant effect. Although Turkish citizens and Syrian immigrants have a common background, geography and religious belief, there are major cultural differences. Immigrant communities tend to be more closed and maintain traditions aimed at preserving their culture (19). There are wide cultural differences from family relations, nutrition, clothing, and use of health services to language. While Turkish citizens will communicate more easily when accessing and using health services, Syrian immigrants are more disadvantaged in this regard. This may have caused Syrian women to be less likely to seek screening and to apply to a health institution only in case of illness.

Table 3. Comparison of information about BSE, CBE and mammography

Variable(s)	Turkish (n / %)	Syrian (n / %)	χ^2	<i>p</i>		
Knowing about BSE	51.3	287	48.7			
Yes	188	62.3	104	36.2	39.839	<0.001
No	114	37.7	183	63.8		
Receiving BSE training	121	40.1	56	19.5	29.575	<0.001
Yes	181	59.9	231	80.5		
No	127	42.1	56	19.5	34.911	<0.001
Case of performing BSE	175	57.9	231	80.5		
Once a month	50	16.6	13	4.5		
Sometimes	52	17.2	61	21.3	25.864	<0.001
Every 2-3 months	108	35.8	54	18.8		
Case of having CBE done	74	24.5	32	11.1	17.780	<0.001
Yes	228	75.5	255	88.9		
No	29	9.6	6	2.1		
Breast complaint	18	6.0	13	4.5	4.958	0.084
Reason for having CBE done	27	8.9	13	4.5		
Advice of HP	95	31.5	10	3.5	78.602	<0.001
Own opinion	207	68.5	277	96.5		
At what age is CBE done?	93	30.8	10	3.5	76.065	<0.001
Knowing	209	69.2	277	96.5		
Not knowing	225	74.5	60	20.9	169.267	<0.001
Yes	77	25.5	227	79.1		
No	50	16.6	10	3.5	27.484	<0.001
Case of having mammography	252	83.4	277	96.5		
Yes	120	39.7	33	11.5	61.018	<0.001
Knowing	182	60.3	254	88.5		
Not knowing						

χ^2 : chi-square; CBE: clinical breast exam; BSE: breast self-exam; HP: health professional

In Turkey, the Ministry of Health breast cancer screening program recommends women between the ages of 40–69 years to have mammography every two years (17). For women at average risk of breast cancer, the American Cancer Society recommends that those aged 40 to 44 years have the option to begin annual mammography, those aged 45 to 54 years should undergo annual mammography, and those aged 55 years or older may transition to biennial mammography or continue with annual mammograms. Women should continue screening as long as their overall health is good and they have a life expectancy of 10 years or more (20). In the present study Turkish women had significantly better knowledge of mammography, mammography screening behavior and correct knowledge of mammography screening time than Syrian women. Obaji et al. (21), in a study from Nigeria, showed that 13.4% of participants had knowledge of mammography, while in a study from Saudi Arabia, 61% of women aged between 20 – 50 years had knowledge of mammography and that 18.2% of them had had mammography (22). Studies from different regions of Turkey reported rates of mammography varying between 8.6% and 57.9% (12-14). However, Turkish Ministry of Health data reported that

71.1% of women aged 40 years and over in Turkey had never had a mammogram (18). In a study carried out with Chinese women living in the USA, 71.1% of women aged 40 and over had mammography done (23). Kwok et al. (19) determined the rate of having mammography every two years among Arabic women in Australia as 40.3%. In a study conducted with Korean women aged over 40 years living in USA, the percentage of women having mammography screening at any time in their lives was 78%, while the percentage of those having screening done in the past year was 38.6% (24). In the present study, reasons for Turkish women having better knowledge about mammography knowledge may once again be ascribed to access to information and fewer communication problems. The low mammography screening rates may be due to the younger age in the study cohort.

Interestingly, Syrian participants' age risk scores were significantly lower than those of Turkish participants. The prevalence of cancer increases with age. In Turkey, the prevalence of breast cancer is 0.1 per 100,000 in the 15–19 years age group, while this rate increases to 153.7 per 100,000 in the 65–69 age group (25). The average age of Syrian immigrants registered in our country is 22.6 years, while

Table 4. Comparison of mean risk scores

Category risk score		Turkish (n = 302) n / %		Syrian (n = 287) n / %		t	p
Age	<30	133	44.0	101	35.2	2.273	0.023
	30–40	79	26.2	122	42.5		
	41–50	45	14.9	52	18.1		
	51–60	28	9.3	6	2.1		
	≥60	17	5.6	6	2.1		
Mean ± SD age risk score		39.88±36.81		33.78±27.42			
Familial breast cancer history	No	259	85.8	236	82.2	-0.867	0.386
	One aunt/grandmother	20	6.6	35	12.2		
	Mother or sister	19	6.3	16	5.6		
	Mother and sister	4	1.3	0	0		
Mean ± SD family history risk score		11.59±31.01		13.76±29.75			
Age of giving birth (first birth)	Before the age of 30	213	70.5	267	93.0	7.208	<0.001
	After the age of 30	9	3.0	2	0.7		
	No child	80	26.5	18	6.3		
Mean ± SD birth risk score		13.99±22.06		3.31±12.28			
Menstruation age	≥15	43	14.2	28	9.8	-2.363	0.018
	12–14	246	81.5	236	82.2		
	≤11	13	4.3	23	8.0		
Mean ± SD menstruation risk score		24.65±6.42		26.03±7.68			
Body structure	Underweight	65	21.5	67	23.3	1.958	0.051
	Normal	111	36.8	124	43.2		
	Overweight	126	41.7	96	33.4		
Means ± SD body type risk scores		33.28±14.65		30.96±14.08			
Risk total score	Below 200; low risk	272	90.1	263	91.6	3.415	0.001
	201–300; medium risk	29	9.6	24	8.4		
	301–400; high risk	1	0.3	-	-		
Mean ± SD total risk score		123.39±57.15		107.84±53.16			

t: independent samples t-test; SD: standard deviation

according to the 31st December 2019 data, the average age of the population of Turkey was 32.4 years (26). Although breast cancer is the most common type of cancer among immigrants from the Middle East (11), there was no breast cancer in either participant group in this study. As the study cohort was relatively young the risk scores may have been lowered.

When family history is investigated, a high proportion of both groups reported “no cancer at all” and that background risks were absent in both groups. In a study conducted in Iran, there was a history of breast cancer in the families of 37.5% of participants (27). In a study carried out in Turkey, breast cancer history was not found in the families of 91.7% of women (28). In general, prevalence in developed regions of the world is high (over 80 per 100,000), while in developing regions it is low, though increasing (less than 30 per 100,000) (29). As Turkey belongs to the developing category, this may explain this result. Moreover, this situation may be due to the fact that the participants in our study had a lower risk of breast cancer in terms of average age.

When birth risk scores were assessed, a high percentage of women in both groups had given birth to their first child “before the age of 30”. The age at first birth of 93% of Syrian participants was “before the age of 30” and they had lower risk scores. According to 2018 Turkey Demographic and Health Survey data, the median birth age of Turkish women was 23.3 years (30). In studies conducted with similar groups, it was found that rates of adolescent (aged 12–19 years) pregnancies among Syrian immigrants were significantly higher than those of women of Turkish origin (31–33). It is known that together with migration, women’s social and economic status changes, and that marriages at an early age in women increase. Forced marriage at an early age is an increasing problem among Syrian girls who migrate from Syria to neighboring countries. Syrian families believe that child marriage will reduce poverty and that it will protect their daughters from the physical and sexual violence that girls frequently face. However, forced marriage at an early age increases rates of early pregnancy (34).

Evaluation of body type risk scores showed that 41.7% of Turkish women and 33.4% of Syrian women were “obese” and that mean body type risk scores were significantly higher in Turkish participants. According to the 2018 TNSA data, 59% of women living in our country were overweight or obese (30). In a study carried out with Syrian immigrants living in Turkey, it was reported that 65.2% of women had a body mass index of 25 and above (35). In a similar study, antenatal weights of Syrian immigrants and Turkish women were examined, and the rate of overweight women in both groups was high (32). It can be hypothesized that because most of the women were housewives, and the social lifestyle they have adopted, has led to their becoming increasingly overweight.

When the total breast cancer risk scores were evaluated, both groups were in the “low risk” group. An earlier Turkish study reported that 98.5% of women had a low risk of breast cancer (28). However, breast cancer remains the most frequently seen type of cancer among women in Turkey. The low risk of breast cancer in the present study was consistent with earlier findings. Breast cancer is the second most common cause of death in the world. Globally, approximately one in six deaths, while in our country, about one in five deaths, are due to cancer (25). Deaths from breast cancer can be prevented with changes in lifestyle, early recognition of risk groups, and establishment of early diagnosis behaviors.

Study Limitations

Limitations of this study include that it was performed in ten Family Health Centers of a single city. In addition, the fact that the data collected from Syrian immigrants are based only on personal recall is a further limitation. Finally, the research results cannot be generalized beyond the participant groups.

This study showed that the risk of breast cancer was low in both groups, but that Turkish women had adopted behavior more conducive to early diagnosis. Breast cancer among immigrants and displaced persons has become a growing concern among health providers, host governments, and humanitarian organizations with limited resources to promote breast cancer early diagnosis and screening, and to reduce risk factors. It is critically important to understand the current state of breast cancer knowledge, education and access to care. We hope that the study findings will contribute to potential interventions to improve the quality of care, and to increase awareness of breast cancer and achieve diagnosis at an early stage in this already disadvantaged group of women.

Ethics Committee Approval: Ethical approval was obtained from the Clinical Research Ethics Committee of Gaziantep University (decision no: 2019/93; date: 13.03.2019).

Informed Consent: Informed consent of the participants was obtained during the study.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: H.S.K.; Design: H.S.K., E.Ç.G.; Data Collection or Processing: H.S.K.; Analysis or Interpretation: E.Ç.G.; Literature Search: H.S.K., E.Ç.G.; Writing: H.S.K., E.Ç.G.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

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