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BREAST CANCER SCREENING BELIEFS AMONG SAUDI WOMEN: A CROSS-SECTIONAL STUDY IN SAUDI ARABIA.

Medicine

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ABSTRACT

Background: The incidence of breast cancer in the world is increasing, especially among Arab women. Breast cancer develops at earlier age in Arab females. In Saudi Arabia, it is a significant. Arab women are threatened by mortality from breast cancer, early diagnosis and conscious screening can decrease mortality rate, however there are low knowledge and attitude about breast cancer and its screening.

Aim: To assess the attitude, knowledge and barriers of women toward breast cancer and its screening.

Methods: This study is cross sectional study which included 455 females and was conducted at outpatient primary care setting in two centers (King Khalid University Hospital (KKUH), and Prince Mohammed bin Abdul-Aziz hospital) in Riyadh, Saudi Arabia. The study was based on using a valid and reliable self-administrated Arabic. questionnaire

Results: The mean± SD score of attitude was 654.16±19.89, knowledge was 69.58±16.76 and barriers= 69.40±15.59. There were significant differences between health awareness and both knowledge (P-value=0.000) and barriers (P-value=0.001). Regarding the number of mammogram there was significance difference in mean score of barriers (P-value=0.01). Education level significantly affected knowledge mean score (P-value=0.000).

Conclusion: Low attitude, good knowledge and low barriers were found among Saudi women regarding breast cancer and screening of it.

KEYWORDS

BCSBQ, Saudi Women, Breast cancer screening.

INTRODUCTION:

Breast cancer is the most common type of cancers among women **[1]**, which represented 23 % of all cancers **[2].** The burden of breast cancer in the world is increasing, its incidence among Arab women was grown significantly compared to women of developed countries **[3].**

All over the world, the incidence of breast cancer among women in 2010 was estimated more than 1.6 million new cases **[4].** Breast cancer develops in Arab females at earlier age (49 to 52 years) than women in developed countries who tend to have breast cancer at older age (61 to 63 years) **[5,6].** Recently in Saudi Arabia, it was found that breast cancer was a significant disease in this society as in any other country in the world **[7,8].** Mortality from breast cancer is a significant risk that threatens the Arab women, where diagnosis of cancer occurs at advanced stage **[9].**

Breast cancer mortality represents 14% of women cancer deaths **[10].** In Saudi Arabia, women with breast cancers are presented at advanced stages and it is more frequently in young women **[7,11,12].** Early detection of breast cancer to improve its outcome and survival rates acts as the cornerstone of breast cancer control **[13].** Improving survival rates and reducing morbidity and mortality of breast cancer can be achieved by breast cancer screening **[14].**

Early detection procedures including clinical breast examination, breast self-examination and mammography **[15]**. In developed countries, mortality by breast cancer is decreasing, where the standard for care is the mammography screening **[16].** It was reported that Arab females have low participation rates in screening of breast cancer in their home countries **[1,17].** Also, it was reported that participation of woman was very low and it represented 10 % and more than 65 % of breast cancer women presented at advanced stages **[18].**

Other studies demonstrated that Arab women also showed low participation rates after migration to western countries **[19]. Petro-Nustas et al. [20]** showed that 24.7% of Arab females who live in USA had practiced monthly breast self examination (BSE) over 12 months. It seems that Arab women had low participation and attitude toward breast cancer screening, wrong beliefs and poor knowledge. In Saudi Arabia, it was reported that practice of BSE and awareness of breast cancer among women were low **[21-23].**

Tolma et al [24] reported that low mammography use among Indian American women was predicted by the fatalistic attitude toward breast cancer. Also negative beliefs about breast cancer were found among Indian women **[25].** Embarrassment acted as a barrier for mammographic screening and this was reported by **Daley et al [26].** Lack of knowledge about the purpose of screening acted as a barrier for breast cancer screening **[27].** Other two studies **[28,29]** showed that lack of awareness about the screening availability was a factor that inhibited the practice of breast cancer screening. A previous study showed that attitude and barriers to mammography influenced the practice of breast cancer screening **[30].** The aim of this study is to investigate the women attitudes towards general health check-ups, understand the knowledge and perceptions about breast cancer and explain the barriers to mammographic screening.

MATERIALS AND METHODS

Study design and setting

This is a cross-sectional study conducted among female participants at outpatient setting using a self-administered questionnaire. The study was conducted at two tertiary hospitals in Riyadh, Saudi Arabia. Ethics approval was obtained from the Institutional Review Board, College of Medicine, King Saud University, and Prince Mohammed bin Abdul-Aziz hospital. Informed consent was obtained from all individual participants included in this study.

Participants and survey instrument

We approached participants at outpatient primary care setting in two centers (King Khalid University Hospital (KKUH), and Prince Mohammed bin Abdul-Aziz hospital) in Riyadh, Saudi Arabia between March 2017 and June 2017.

The study participants were all Saudi women who are over 18 years old. Women whohad breast cancer were excluded. Study participation was selected by using convenience sampling technique method where all female present at the time of data collection in two tertiary hospital sites were included. The total sample size of this study was 455 participants.

We used a valid and reliable questionnaire originally designed by Cannas et al [24]. The questionnaire was originally published in Arabic. The questionnaire has a reliability ranged between 0.8 and 0.93. The Arabic version of the Breast Cancer Screening Beliefs Questionnaire (BCSBQ) is a culturally appropriate, valid and reliable instrument for assessing the beliefs, knowledge and attitudes to breast cancer and breast cancer screening practices among Arabic-communities. The author of the original questionnaire granted permission to use it. The BCSBQ is a 13-item instrument composed of three subscales: 1) attitudes towards general health check-ups with a subscale of four items designed to ascertain whether a women had general health check-ups in the absence of signs and symptoms; 2) knowledge and perceptions about breast cancer (four items) which explored cultural beliefs relating to breast cancer and 3) barriers to mammographic screening practices (five items) which covered personal and practical issues perceived by women to hinder their

participation in breast cancer screening. All of the items were rated on a five point Likert scale ranging from 'strongly agree' (score of 1) to "strongly disagree" (score of 5). Lower scores indicated the lowest attitudes, least knowledge or greatest barriers. Besides BCBSQ instrument, we included demographic information such as age, education levels, marital status, current employment status and income. Participants were then asked if they had heard of the concept of breast awareness, (in terms of which women are encouraged to become familiar with their breasts, and whether and how often they undertook CBE and mammograms.

Data analysis:

The data from each returned questionnaire was coded and entered into Statistical Package for the Social Sciences (SPSS) version 21 software (SPSS Inc., Chicago, IL, USA) which was used for statistical analysis. Descriptive statistics, including frequency distribution and percentages were applied to both demographic data and responses to the questions. The chi-square test and other inferential tests were used as indicated. A P-value of less than 0.05 was considered statistically significant for all analyses.

RESULTS:

The demographic characteristics of the455 participants are presented in table1. The age ranged from 20 years to 65 years, with a mean (standard deviation) of 36 (13 years). The majority were married (62%), had university education (53.2%), were unemployed looking for job (33%).

Table 1: Demographic characteristics of the participants

Characteristics	No	%
Age (year) (Mean: 36, SD: 13.0)		
<20	20	4.4
20-29	152	33.4
30-39	121	26.6
40-49	69	15.2
50-59	75	16.5
60+	18	4.0
Marital Status		
Single	125	27.5
Married	282	62.0
Divorced	24	5.3
widow	24	5.3
Educational level		
not attend school	24	5.3
Primary stage	42	9.2
High school	131	28.8
College / University	242	53.2
Master / PhD	16	3.5
Current employment status		
Unemployed / Looking for work	150	33.0
Unemployed / Not looking for work	120	26.4
Full-time	125	27.5
Part-time work	31	6.8
Retired	20	4.4
student	9	2.0

Table2 shows awareness of participants about breast cancer examination. Most of participants 337(74.1%) had health awareness, (50.8%) performed breast cancer examination, of those who performed breast examination, the large majority 114(62%) performed it once a year. The large majority (81.5%) thought that woman keeps regular attention to breast health, and (69.9%) have heard about clinical breast examination, while (30.1%). 309 females mentioned performing breast test, (22.7%) (54%) of them didn't perform test. The most common reason for performing the least breast test was proposal as part of examination (23.6%), followed by trouble in the breast (16.7%) then suggestion of doctor (15.3%), while (44.3%) said other different reasons. There were (74.2%) women said yes about the purpose of test regularity, while (9.2%) said no and (16.6%) didn't know. There were (53.4%) heard about mammography, while (46.6%) reported that they didn't. (21.6%) females performed mammogram once per year, however the large majority (64.1%) didn't performed it at all. Regarding the previous 5 years, there were 51 females performed X- ray for breast, the large majority (39.2%) performed it 1 time. Most of participants (85.6%) preferred the radiologist to be female, while (0.3%) preferred male radiologist and (14.1%) said there was no difference.

Table2: Answers of participants about the questions

Questions	No (455)	%
Health Awareness		
Yes	337	74.1
No	118	25.9
Do you examine your breast?		
Yes	184	50.8
No	178	49.2
Number of breast examination times		
At least once a month	23	12.5
Once every few months	47	25.5
Once a year	114	62.0
Do you think that a woman keeps regular attention to breast health?		
Yes	371	81.5
No	62	13.6
I dont know	22	4.8
Have you heard of clinical breast examination?		
Yes	318	69.9
No	137	30.1
Last breast test(309)		
One year or less	70	22.7
2-3 years	40	12.9
more than 3 years	32	10.4
never	167	54.0
The reason for the last breast test		
Trouble in the breast	34	16.7
My doctor's suggestion	31	15.3
Proposal as part of the examination	48	23.6
other	90	44.3
	203	
Propose the test regularly		
Yes	210	74.2
No	26	9.2
I don't know	47	16.6
Have you heard of the mammogram?		
Yes	243	53.4
No	212	46.6
Number of times the mammogram		
One time on Year	50	21.6
Once every two years	11	4.8
Once every three years	22	9.5
never	148	64.1
Breast x-ray in the last five years(51)		
1	20	39.2
2	15	29.4
3	10	19.6
4	2	3.9
5	2	3.9
6	1	2.0
8	1	2.0
Do you prefer to be a radiologist male or female		
Male	1	0.3
Female	268	85.6
There is no difference	44	14.1

The range of score for attitude, knowledge and barriers to breast cancer screening was20-100. The mean ± SD score of attitude was 54.16± 19.89 and the median was 50, while the mean ±SD score of knowledge was 69.58±16.76 and the median was 70, the mean ± SD score for barriers was 69.4±15.59 and the median was70, figure1.

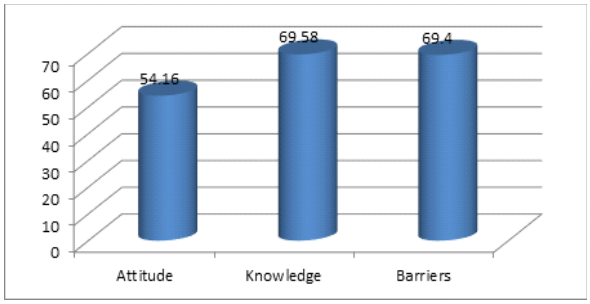

Fig1: Mean scores of attitude, knowledge and barriers

The impact of demographic characteristics on attitude, knowledge and barriers was investigated. Results summarized in table3, indicating that attitude, knowledge and barriers didn't differ significantly regarding age groups and marital status. Regarding education level, no significant differences were found between different education level in both attitude (P-value=0.5) and barriers (P-value=0.2), while there was a significant difference in knowledge (P-value=0.0001), where those in university had the highest mean score of knowledge (mean=73.22).

Table3: Correlation between demographics of participants and attitude, knowledge and barriers subscales

Characteristics	No (455)	Attitude	Knowledge	Barriers
		Mean± SD		
Age groups <20	20	55.75±19.6	68.25±14.6	63.00±18.1
20-29	152	54.74±18.0	71.38±16.7	69.44±15.9
30-39	121	54.21±19.4	71.74±15.9	70.41±15.4
40-49	69	54.49±21.4	67.97±15.5	69.20±17.0
50-59	75	51.60±22.2	65.87±19.8	70.27±13.9
60+	18	56.67±23.6	63.06±12.5	66.39±12.1
P-value		**0.8**	**0.052**	**0.4**
Marital Status				
Single	125	55.24±19.1	71.56±17.3	68.72±17.6
Married	282	54.38±20.0	68.97±16.3	69.50±14.2
Divorced	24	48.54±21.1	70.00±18.1	71.04±19.4
widow	24	51.67±21.8	66.04±17.6	70.00±17.0
P-value		**0.4**	**0.3**	**0.9**
Educational level				
Not attend school	24	55.00±22.7	62.50±18.8	66.25±15.0
Primary stage	42	50.95±23.9	62.62±16.8	68.69±14.9
High school	131	53.59±19.2	66.18±16.3	67.60±14.4
College / University	242	54.52±19.3	73.22±15.7	70.54±15.9
Master / PhD	16	60.63±19.2	71.25±19.5	73.44±21.3
P-value		**0.5**	**0.000***	**0.2**
Current employment status				
Unemployed / Looking for work	150	54.03±18.8	69.83±16.6	68.57±15.1
Unemployed / Not looking for work	120	52.71±20.8	66.13±17.3	68.83±14.1
Full-time	125	57.32±19.4	73.64±15.7	70.60±16.9
Part-time work	31	48.39±21.0	66.61±16.5	68.87±18.5
Retired	20	53.00±22.4	65.00±19.5	72.50±17.4
student	9	54.44±20.1	75.56±7.7	68.89±10.5

Having breast cancer examination before significantly affected the three parameters where the mean score for the three parameters was higher for females who had breast cancer examination. Regarding health awareness, there was no significance difference in attitude (P-value=0.3), while there were significant differences in knowledge (P-value=0.0001) and barriers (P-value=0.001), participants with health awareness had higher mean score for knowledge and barriers. Regarding the number of breast cancer examination, there were no significant difference in attitude (P-value=0.1), knowledge (P-value=0.4) and barriers(P-value=0.1). There were no significance differences in the mean score of the three parameters regarding examining breast, last breast test, reason for last breast test, propose the test regularity and breast X-ray in the previous 5 years. Hearing about clinical breast examination significantly affected barriers only (P-value=0.01), who heard about it had higher mean score of barriers. There were no significant difference in attitude (P-value=0.8) and knowledge (P-value=0.5) regarding the number of mammograms, while there was a significant difference in barriers (P-value=0.01), the mean score for barriers was higher in those who performed mammogram one time per year (mean=74.3). Barriers were significantly affected by the radiologist gender chosen by participants (P-value=0.004), where the highest mean score was found for those who had no preference between male and female radiologist, the correlations of the answers of participants with the three parameters are shown in table4.

Table4:correlation between attitude, knowledge and barriers and the questions of the survey

Characteristics	No	Attitude	Knowledge	Barriers
Number of Breast examination				
At least once a month	23	56.09±23.45	70.87±17.82	75.22±14.81
Once every few months	47	62.13±18.7	72.77±17.13	67.98±16.24
Once a year	113	55.09±21.04	69.29±14.76	72.35±14.88
P-value		**0.1**	**0.4**	**0.1**
Health Awareness				
Yes	337	54.72±19.56	71.72±15.97	70.82±15.41
No	118	52.58±20.81	63.47±17.50	65.34±15.44
P-value		**0.3**	**0.000***	**0.001***
Number of Mamogram				
One time on Years	50	56.80±20.47	68.80±17.80	74.30±15.15
Once every two years	11	55.00±20.37	73.18±14.88	56.36±18.04
Once every three years	22	59.77±24.62	72.27±17.98	71.82±18.03
never	148	55.81±19.65	72.47±16.30	72.50±15.90
P-value		**0.8**	**0.5**	**0.01***
Have you had breast cancer before?				
Yes	362	55.14±19.7	71.28±15.1	70.88±15.2
No	93	50.38±20.4	62.96±17.8	63.60±15.9
P-value		**0.039***	**0.000***	**0.000***
Do you examine your breast?				
Yes	184	57.09±20.7	70.27±15.8	71.63±15.3
No	178	53.12±18.3	72.33±16.3	70.11±15.1
P-value		**0.054**	**0.2**	**0.3**
Do you think that a woman keeps regular attention to breast health?				
Yes	371	55.20±19.4	70.71±16.2	70.57±15.4
No	62	51.21±22.7	64.60±20.3	65.16±17.3
I don't know	22	45.00±16.7	64.55±10.9	61.59±9.4
P-value		**0.029***	**0.01***	**0.002***
Have you heard of clinical breast examination?				
Yes	318	54.78±19.2	70.30±16.1	70.58±15.1
No	37	52.74±21.4	67.92±18.2	66.64±16.5
P-value		**0.3**	**0.1**	**0.013***
Last breast test				
One year or less	70	55.50±20.6	68.07±14.8	71.50±14.8
2-3 years	40	56.00±19.0	70.75±19.0	72.38±15.3
More than 3 years	32	58.75±18.1	67.75±11.9	68.44±15.6
Never	167	53.20±19.1	71.59±16.4	70.45±15.0
P-value		**0.4**	**0.4**	**0.6**
The reason for the last breast test				
Trouble in the breast	34	52.06±16.2	66.62±17.3	70.00±16.4
My doctor's suggestion	31	53.06±19.0	70.32±15.6	72.26±12.1
Proposal as part of the examination	48	59.38±20.4	69.79±14.6	68.44±16.2
Others	90	55.06±18.5	69.00±13.6	70.72±14.7
P-value		**0.2**	**0.7**	**0.7**
Propose the test regularly				
Yes	210	56.10±18.5	69.19±15.6	70.00±15.2
No	26	60.58±21.4	64.42±14.1	65.77±15.8
I don't know	47	50.21±19.6	64.15±14.5	65.00±12.7
P-value		**0.059**	**0.06**	**0.06**
Have you heard of the mammogram?				
Yes	243	57.14±20.4	71.81±16.6	71.83±16.3
No	212	50.75±18.8	67.03±16.6	66.60±14.3
P-value		**0.001***	**0.002***	**0.000***
Breast x-ray in the last five years				
1-2 times	35	59.43±23.9	69.71±14.3	72.86±18.9
3-4 times	12	54.17±19.9	71.67±19.3	66.25±20.7
>4 times	4	60.00±18.7	68.75±13.1	66.25±11.1
P-value		**0.7**	**0.6**	**0.5**

Do you prefer to be a radiologist male or female?				
Male	1	30.00	50.00	70.00
Female	268	55.15±18.8	68.15±15.7	67.89±16.1
There is no difference	44	57.50±23.1	72.84±18.2	76.59±15.3
P-value		**0.3**	**0.1**	**0.004***

*P-value; significant

DISCUSSION

Breast cancer is ranked first cancer between females in Saudi Arabia, and it accounts for 20.6% among all new diagnosed cancers of females **[8].** In the present study health awareness was present in 74.1% of participants, however only 50.8% of them had examined their breasts before with 62% performed it once a year, and 64.1% never performed mammography and only 21.6% performed it once per year. Reports showed that 54% of Asian-American females used mammography within 1-2 years **[31].** It was reported that preventive health care concept had low priority between Chinese population**,** where 42% of women in Hong Kong refused to perform annual mammography and clinical examination **[32]**. In a previous Saudi study **[33]** among female students, it was found that 50.7% and 8.7% performed breast self examination and clinical breast examination respectively and no one performed mammography. Studies in USA **[20]** and Qatar **[34]** found that 24.7% only of Arab females in USA participated in monthly BSE, while only31.3% and 26.9% of females from Qatar presented themselves for CBE and mammographic screening respectively. This can be attributed to low level of knowledge and attitude or high barriers to BSE, CBE and mammogram. In the present study the mean score of women's attitude towards general health check-ups was 54.16, the mean score of females' knowledge and perception about breast cancer was 69.58 and the mean score of barriers to mammographic screening was 69.4. Lower scores indicated to lowest attitude and knowledge and highest barriers, hence we can demonstrate that attitude level was low, while knowledge was intermediate and barriers were low. In the present study, although age didn't significantly affected any of the three parameters, the highest knowledge mean score was found for those with age of 20-29 years and 30-39 years. Low knowledge level of young female generation in secondary schools was reported from a study from Jeddah, Saudi Arabia **[35].** Other previous studies from Saudi Arabia reported unsatisfactory knowledge level about breast cancer screening methods and risk factors **[2,22,23].** A study in UAE showed that there was poor knowledge of breast cancer between women in Al Ain **[36].** Several studies **[37-39]** showed that there were misconception and inaccurate knowledge about breast cancer and screening between females. Other studies **[40,41]** reported that Chinese women had unfavorable attitudes and knowledge about breast cancer, and screening practices. In the current study, most of females in this study didn't perform mammogram at all, there were no significance differences in attitude, knowledge or barriers regarding number of breast examination. A study on Arabian-Australian women using BCSBQ, there were significances regarding attitude and barriers **[42].** Knowledge and barriers affected by health awareness, where higher mean scores for both knowledge and barriers were associated significantly (P-value=0.000, 0.001 for knowledge and barriers respectively) with presence of health awareness, while no significance observed in attitude. In a previous study, it was found that significances were found between awareness and both attitude and barriers, but not knowledge **[42].** In the current study, participants who heard about mammogram had higher knowledge and attitude with low barriers than those who didn't hear about it, there were significant correlations regarding hearing about mammogram and the three parameters, number of mammogram performed significantly (P-value=0.01) related to the barriers, while knowledge and attitude weren't influenced significantly with number of mammogram performed. However in a previous study using the Arabic version of BCSCQ, there were significant differences regarding both attitude and barriers **[42].** Education level was significantly (P-value=0.000) influenced knowledge of females, where participants with university education had the highest knowledge score, the education level had no significant effect on attitude or barriers. In a previous study on Arabian-Australian women **[42]** it was found that education level significantly affected the three scales. Education level was significantly associated with knowledge of participants in this study and this was in agreement with several previous studies **[15,42,43].** Marital status didn't affect significantly any of the three parameters, while both employment status and English proficiency affected knowledge significantly with highest mean score for students and those with good English. Females who had breast cancer before had highest mean score in the three parameters than those who didn't have breast cancer, this means that females who had previously breast cancer had higher knowledge and attitude with low barriers. Also those who thought that women should keep regular attention to breast health had higher knowledge and attitude with low barriers, the correlations were significant regarding the three parameters. Females who heard about clinical breast examination and who found no difference in female radiologist and male radiologist had low barriers than other participants, the correlation was significant, and however no significances were found regarding knowledge or attitude. The present study is the first study performed in Saudi Arabia to assess the knowledge, attitude and barriers toward breast cancer screening using the Arabic version of BCSBQ. As this study is the first Saudi study to use BCSBQ, we couldn't compare our results with previous results, also there was another limitation in this study; we didn't correlate the three measured scales with all demographics of participants.

CONCLUSION:

The attitude of Saudi females was fair, but the knowledge was good and the barriers were low. Health awareness significantly affected knowledge and barriers, number of mammogram significantly affected barriers and education level significantly affected knowledge.

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