



Journal Homepage: - www.journalijar.com
**INTERNATIONAL JOURNAL OF
 ADVANCED RESEARCH (IJAR)**

Article DOI: 10.21474/IJAR01/5314
 DOI URL: <http://dx.doi.org/10.21474/IJAR01/5314>



RESEARCH ARTICLE

BREAST CANCER KNOWLEDGE, ATTITUDES AND PRACTICE AMONG WOMEN IN KING KHALID ARMED FORCES HOSPITAL, TABUK 2017.

Nada Saleh Albalawi¹ and Khalil Abu Jamilah².

1. MBBS, Family Medicine Resident.
2. consultant of Family Medicine, King Khalid Armed Forces hospital, Tabuk.

Manuscript Info

Manuscript History

Received: 03 July 2017
 Final Accepted: 05 August 2017
 Published: September 2017

Key words:-

Breast Cancer, Knowledge, attitudes
 ,Practice.

Abstract

Objectives: This study aimed to assess knowledge, attitude and practice regarding breast cancer and its screening among women in King Khalid Armed Forces Hospital, Tabuk 2017.

Methods: It was cross sectional study-facility based study carried out in Tabuk city including a random sample of women (336) aged 18 years and above attending family medicine clinic and women health center, King Khalid Armed Forces hospital throughout the period between 1st of March and 30 of April, 2017. Breast cancer awareness measure (CAM) validated questionnaire was used to collect the data.

Results: The age of almost one-third of them (34.2%) ranged between 30 and 39 years. Overall, the sufficient overall knowledge regarding breast cancer was observed among 13.1% of the participants. Multivariate logistic regression analysis revealed that older women were more likely to have insufficient knowledge about breast cancer compared to younger women (AOR=2.98, 95% CI=1.03-8.68, p=0.016 and AOR=2.83, 95% CI=0.05-14.79, p=0.049, respectively). Most of women (75.6%) rarely or never checked their breast , 8% did this at least once a month, 76.5% were not at all confident in noticing breast changes whereas only 1.2% of them were fairly confident ,27.4% saw a doctor about noticed breast changed whereas 44.9% of the women never noticed breast changes.

Conclusion: Minority of adult women attending family medicine clinic and women health center, King Khalid Armed Forces hospital, Tabuk have sufficient knowledge of breast cancer. Most of them rarely or never checked their breast and not at all confident in noticing breast changes.

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Introduction:-

Breast Cancer epidemiology :-

According to the world health organization (WHO) :
 Breast cancer is the top cancer in women worldwide. ^[1]

According to CENTER FOR DISEASE CONTROL AND PREVENTION (CDC):-

Worldwide in 2012 (the latest available year for information), breast cancer was the second most common cancer (12% of all cancers diagnosed; 1.7 million people). Death from breast cancer was (6% of all cancer deaths; 522,000 people).^[2]

Incidence of breast cancer in Saudi Arabia:-

-Based on the last cancer incidence report of Saudi cancer registry 2013 that published on June 2016. The breast cancer was the most common cancer among Saudi population in 2013 for all ages, the number of cases was 1874 case in percentage of 16.1%. Breast cancer was the most common cancer in Saudi women in percentage of 29.1%. In Tabuk city, the breast cancer was the most common cancer among women in percentage of 24.9 %. The median age at the diagnosis of breast cancer among Women in Saudi Arabia 2013 was 50 year, ranged between 20 and 116 years.^[3]

Factors associated with increased risk of breast cancer:-

The Age is strongly related to the breast cancer risk, Family history and genetics factor, Reproductive age as late age at first giving birth, early age at menarche, late age at menopause, Using of hormonal contraceptive, Using of hormone replacement therapy, Overweight and obesity, Height (Greater adult attained height is cause of post-menopausal breast cancer but in pre-menopausal women, probably the height is cause of breast cancer), More breast density, Benign breast disease, Atypical hyperplasia of breast, Previous history of breast cancer, Isonizing radiation exposure, Dietary fat and alcohol consumption, Tobacco smoking, Medical disease (diabetes mellitus, High bone mineral density and Autoimmune thyroiditis).^[4]

Factors associated with decrease risk of breast cancer:-

Multiparity, breast feeding, physical activity, also, some diet is associated with decreasing the risk of breast cancer: vegetable and fruit, dietary fibers.^[4]

Symptoms of breast cancer:-

Change in the size, shape of the breast, Lump in a breast or axilla, Skin changes as (skin rash, puckering, dimpling), Abnormal Discharge from a nipple, Changes in the position of a nipple, Pain in the breast.^[5]

Screening by mammogram:-

Clinical Practice Guideline on the Use of Screening Strategies for the Detection of Breast Cancer in Saudi Arabia: "The Ministry of Health of Saudi Arabia guideline panel suggests screening with mammography in women aged 50–69 years every 2 years Conditional recommendation; moderate-quality evidence"^[6] "The USPSTF recommends biennial screening mammography for women aged 50 to 74 years"^[7]

Breast Self-Examination and clinical breast examination:-

1. "The Ministry of Health of Saudi Arabia guideline panel suggests that self-breast examination not be used as a single method of screening for breast cancer in women of all ages. (Conditional recommendation; very- low quality evidence"^[6]
2. "The Ministry of Health of Saudi Arabia guideline panel suggests that clinical breast examination by a health care professional not be used as a single method of screening for breast cancer in women of all ages. (Conditional recommendation; no evidence)^[6]

Rational :

1. No data available about the level of awareness of our patients in Tabuk city about breast cancer.
2. Measuring of breast cancer related knowledge and practices is the key to direct the breast cancer awareness campaigns for women that conducted in many health and non-health centers.
3. Increasing the awareness of breast cancer among women has long term impact on early patient presentation, as has been suggested by studies in the United Kingdom.^[8]
4. Breast cancer awareness is significantly important in studies done in low income countries found that the awareness of breast self-examination had significant impact on early presentation.^[9]

Problem Statements:-

1. Breast cancer is common in developing countries where the majority of cases are diagnosed in late stages.^[1]

2. Diagnosis of breast cancer at advanced stages contributes to the high mortality rate among women due to breast cancer, which can be attributed to the low levels of awareness.^[10]
3. low levels of cancer awareness have been found to be an important risk factor for delay in presentation of cancer by the patients.^[11]

This study is aimed to assess the knowledge and attitude about breast cancer and to identify the practice about the breast self-examination among women in King Khalid Armed Forces Hospital, Tabuk 2017.

Material and Methods:-

It was a cross sectional study-facility based study, carried out among all women aged 18 years and above attending family medicine clinic and women health center at King Khalid Armed Forces hospital , Tabuk city, northwestern Saudi Arabia. Based on published study conducted in Riyadh, the prevalence of breast cancer awareness was 30 %.^[12] Sample size was estimated to be 336 and was increased to 360 subjects to compensate for the potential non-response.

Study variables:-

Age, marital status, level of education, nationality, income, risk factors of breast cancer, signs of breast cancer, information and behavior about breast examination and breast cancer screening.

Study tool:-

Breast cancer awareness measure (CAM) validated questionnaire was used to collect the data. Modified Arabic version of breast cancer awareness measure (CAM) was used . The Breast-CAM was developed by Cancer Research UK, King's College London and University College London in 2009 and validated with the support of Breast Cancer Care and Breakthrough Breast Cancer.^[13]

Collected Data were entered, stored and analyzed using the statistical package for Social Science (SPSS) programme, V22 for window. Chi-square test was used for testing the association among categorical variables. P value equal or less than 0.05 was considered as statistical significant.

For knowledge questions, each correct answer was assigned a score of "1" while incorrect or missing or don't know answers were assigned a score of "0". Total score was computed for every participant and knowledge percentage was computed. Those who had below 50% of the total percentage score were considered as having "insufficient knowledge" whereas those scored 50% or more were considered as having "sufficient knowledge".

Approvals from administration in King Khalid Armed Forces hospital were obtained. Confidentiality was assured to all participants. Informed consent was obtained by every patient before starting the interview.

Results:-

Socio-demographic characteristics:-

The study included 336 women out of a targeted sample of 360 giving a response rate of 93.3%. Their socio-demographic characteristics are summarized in table 1. The age of almost one-third of them (34.2%) ranged between 30 and 39 years whereas that of 11.9% of them was 60 years or above. Majority of the participants were Saudis (99.1%) and reside inside Tabuk city (90.8%). Also majority of them (86.8%) were married. About one-third of the women (34.2% were illiterate whereas 16.1% were university graduated. Regarding family income per month, 47.3% of them had more than 10000 whereas 11.6% had less than 5000 Saudi Riyals. (Table 1).

Knowledge about breast cancer:-

Symptoms of breast cancer:-

From table 2, it is seen that majority of the women (92.9%) could recognize presence of a lump or thickness in breast as a symptom of breast cancer. Approaching half of the participants (47.3%) knew correctly that pain in one breast could be a symptom of breast cancer. Almost one-quarter of them could recognize that presence of a lump or thickness under armpit (27.7%), changes in the size of breast or nipple (27.7%) and discharge or bleeding from nipple (25.6%) as symptoms of breast cancer. Other symptoms of breast cancer such as change in the nipple position, pulling of nipple, puckering or dimpling of breast skin, nipple rash, redness of breast skin and changes in the shape of breast or nipple were recognized by minority of the participants (12.5% to 14%). (Table 2).

The sufficient knowledge regarding symptoms of breast cancer was observed among 13.4% of the participants . (Figure 1) .

Risk factors for breast cancer:-

More than half of the participants (54.5%) could recognize past history of breast cancer as a risk factor. More than one third of women (36.3%) knew that using hormonal replacement therapy is a risk factor for breast cancer. More than one quarter of them (27.7%) knew correctly that having a close relative with breast cancer is a risk factor for breast cancer. Minority of the participants could recognize that being overweight, having children later on in life or not at all, starting periods at an early age, having a late menopause, physical inactivity and aged of 50 years are risk factors for breast cancer. (Table 3)

The sufficient knowledge regarding risk factors for breast cancer was observed among only 8.6% of the participants. (Figure 2) .

Screening for breast cancer:-

As demonstrated in table 4, minority of the women could recognize that the age at which women first invited to breast cancer screening programme according to guidelines of Saudi Ministry of Health is 50 years (1.8%) and the age at which women receive last invitation to breast cancer screening programme according to guidelines of Saudi Ministry of Health is 69 years (0.3%). Only one woman reported invitation for breast cancer screening (0.3%) and she was the only one who had breast cancer screening (0.3%).

The sufficient knowledge regarding screening for breast cancer was observed among only 2.1% of the participants . (Figure 3) .

Factors associated with overall knowledge regarding breast cancer:-

Overall, the sufficient overall knowledge regarding breast cancer was observed among 13.1% of the participants . (Figure 4) .

From table 5, it is shown that 27.7% of women aged between 18 and 29 years compared to 6.2% of women aged between 50 and 59 years and 2.5% of those aged 60 years or more had sufficient knowledge about breast cancer. These differences were statistically significant, $p=0.001$. Single women had higher sufficient knowledge about breast cancer compared to married, divorced and widowed women (27.3% versus 13% and zero%, respectively), $p=0.027$. University graduated women were more knowledgeable about breast cancer compared to illiterate women (27.8% versus 4.3%), $p=0.001$. Women`s nationality, residence location and income were not significantly associated with knowledge about breast cancer. (Table 4) .

Multivariate logistic regression analysis revealed that women in the age groups 30-39 and ≥ 60 years were more likely to have insufficient knowledge about breast cancer compared to those aged 18-29 years (AOR=2.98, 95% CI=1.03-8.68, $p=0.016$ and AOR=2.83, 95% CI=0.05-14.79, $p=0.049$, respectively). Compared to illiterate women, high school and university graduated women were at lower significant risk for having insufficient knowledge about breast cancer (AOR=0.07, 95% CI=0.01-0.50, $p=0.009$ and AOR=0.03, 95% CI=0.001-0.27, $p=0.001$, respectively). (Table 5) .

Confidence, skills and behaviors in relation to breast changes:-

The results show that 75.6% of the participants rarely or never checked their breast and only 8% did this at least once a month. Also, 76.5% were not at all confident in noticing breast changes whereas only 1.2% of the participants were fairly confident. Almost one-quarter of them (27.4%) saw a doctor about noticed breast changes whereas another 27.4% did not do this and 44.9% of the women never noticed breast changes.

Factors associated with frequency of checking breast cancer:-

Table 6 shows that 15.2% of women in the age group 18-29 years compared to none of those aged 50 years and more checked their breasts at least once/month. This difference was statistically significant, $p<0.001$. Almost a quarter (24.1%) of university graduated women compared to none of illiterate women checked their breasts at least once/month. This difference was statistically significant, $p<0.001$. Women with higher family income (>10000 SR/month) were more likely to check their breasts at least once/month compared to those whose income was less

than 5000 SR/month (10.7% versus 0%), $p=0.011$. Women`s nationality, residence location and marital status were not significantly associated with frequency of checking breasts. (Table 6) .

Factors associated with women`s confidence in noticing breast change:-

Table 7 shows that 28.7% of women in the age group 30-39 years compared to none of those aged 50 years and more were slightly or fairly confident in noticing their breast changes. This difference was statistically significant, $p<0.001$. More than forty percent (40.7%) of university graduated women compared to none of illiterate women were slightly or fairly confident in noticing their breast changes. This difference was statistically significant, $p<0.001$. Women`s nationality, residence location, marital status and income were not significantly associated with confidence in noticing breast changes. (Table 7) .

Factors associated with seeing doctors about noticed breast change:-

Table 8 shows that 38.5% of women in the age group 50-59 years compared to 12.8 of those aged between 18 and 29 years saw doctors for noticed breast change. This difference was statistically significant, $p<0.001$. More than One third (38.1%) of divorced/widowed women compared to 9.1% of single women saw doctors for noticed breast change. This difference was statistically significant, $p=0.004$. More than half (53.7%) of university graduated women compared to 21.9% of illiterate women never noticed breast changes. This difference was statistically significant, $p<0.001$. Exactly half of women whose income ranged between 5000 and 10000 compared to 18.4% of those whose income was less than 5000 SR/month never noticed their breast changes. This difference was statistically significant, $p=0.003$. Less than half of women reside in Tabuk city (46.6%) compared to 30% of those reside in Tabuk rural area never noticed their breast changes. This difference was statistically significant, $p=0.043$. Women`s nationality was not significantly associated with seeing doctor about noticed breast changes. (Table 8).

Table 1:- Socio-Demographic Characteristics Of The Participants.

	Frequency (n=336)	Percentage
Age in years		
18-29	47	14.1
30-39	115	34.2
40-49	69	20.5
50-59	65	19.3
≥60	40	11.9
Nationality		
Saudi	333	99.1
Non-Saudi	3	0.9
Residency location		
Tabuk city	305	90.8
Rural area of Tabuk	31	9.2
Marital status		
Single	22	6.6
Married	292	86.8
Divorced/widowed	22	6.6
Educational level		
Illiterate	115	34.2
Primary school	41	12.2
Intermediate school	25	7.4
High school	101	30.1
University	54	16.1
Income (SAR/month)		
<5000	39	11.6
5000-10000	138	41.1
>10000	159	47.3

Table 2:- Knowledge Of The Participants About Symptoms Of Breast Cancer.

Breast cancer symptoms	Right answer	
	No.	%

Change in the nipple position	45	13.4
Pulling of nipple	46	13.7
Pain in one breast	159	47.3
Puckering or dimpling of breast skin	47	14.0
Discharge or bleeding from nipple	86	25.6
Lump or thickness in breast	312	92.9
Nipple rash	42	12.5
Redness of breast skin	44	13.1
Lump or thickness under armpit	93	27.7
Changes in the size of breast or nipple	93	27.7
Changes in the shape of breast or nipple	47	14.0

Table 3: Knowledge of the participants about Risk factors for breast cancer.

Risk factors for breast cancer	Right answer	
	No.	%
Having a past history of breast cancer	183	54.5
Using hormonal replacement therapy	122	36.3
Being overweight (BMI over 25 Kg/m ²)	29	8.6
Having a close relative with breast cancer	93	27.7
Having children later on in life or not at all	29	8.6
Starting periods at an early age	29	8.6
Having a late menopause	29	8.6
Doing less than 30 minutes of moderate physical activity 5 minutes a week	27	8.0
Aged 50 years	12	3.6

Table 4:- Factors associated with overall knowledge regarding breast cancer

	Breast cancer knowledge		χ^2 (p-value)
	Insufficient N=292 N (%)	Sufficient N=44 N (%)	
Age in years			17.78 (0.001)
18-29 (n=47)	34 (72.3)	13 (27.7)	
30-39 (n=115)	102 (88.7)	13 (11.3)	
40-49 (n=69)	56 (81.2)	13 (18.8)	
50-59 (n=65)	61 (93.8)	4 (6.2)	
≥60 (n=40)	39 (97.5)	1 (2.5)	
Nationality			0.345*
Saudi (n=333)	290 (87.1)	43 (12.9)	
Non-Saudi (n=3)	2 (66.7)	1 (33.3)	
Residency location			0.398*
Tabuk city (n=305)	264 (86.6)	41 (13.4)	
Rural area of Tabuk (n=31)	28 (90.3)	3 (9.7)	
Marital status			7.20 (0.027)
Single (n=22)	16 (72.7)	6 (27.3)	
Married (n=292)	254 (87.0)	38 (13.0)	
Divorced/widowed (n=22)	22 (100)	0 (0.0)	
Educational level			18.69 (0.001)
Illiterate (n=115)	110 (95.7)	5 (4.3)	
Primary school (n=41)	36 (87.8)	5 (12.2)	
Intermediate school (n=25)	22 (88.0)	3 (12.0)	
High school (n=101)	85 (84.2)	16 (15.8)	
University (n=54)	39 (72.2)	15 (27.8)	
Income (SAR/month)			
<5000 (n=39)	38 (97.4)	1 (2.6)	

5000-10000 (n=138)	120 (87.0)	18 (13.0)	4.77
>10000 (n=159)	134 (84.3)	25 (15.7)	(0.092)

* Fischer exact test

Table 5:- Socio-demographic predictors for insufficient breast cancer knowledge: Multivariate logistic regression analysis

	Adjusted Odds ratio (AOR)	95% Confidence interval (CI)	p-value
Age in years			
18-29 (n=47) ^(a)	---	---	
30-39 (n=115)	2.98	1.03-8.68	0.016
40-49 (n=69)	1.09	0.12-1.68	0.120
50-59 (n=65)	1.03	0.04-3.09	0.361
≥60 (n=40)	2.83	0.05-14.79	0.049
Educational level			
Illiterate (n=115) ^(a)	---	---	
Primary school (n=41)	0.37	0.06-2.44	0.304
Intermediate school (n=25)	0.17	0.02-1.47	0.108
High school (n=101)	0.07	0.01-0.50	0.009
University (n=54)	0.03	0.001-0.27	0.001

^(a): Reference category

Variables of marital status and income were removed from the final model (not significant)

Table 6:- Factors associated with frequency of checking breast cancer among the participants

	Frequency of checking the breast			χ^2 (p-value)
	Rarely/Never N=254 N (%)	At least once/6 months N=52 N (%)	At least once/month N=27 N (%)	
Age in years				
18-29 (n=46)	34 (73.9)	5 (10.9)	7 (15.2)	
30-39 (n=115)	63 (54.8)	36 (31.3)	16 (13.9)	
40-49 (n=69)	55 (79.7)	10 (14.5)	4 (5.8)	
50-59 (n=65)	65 (100)	0 (0.0)	0 (0.0)	63.67
≥60 (n=38)	37 (97.4)	1 (2.6)	0 (0.0)	(<0.001)
Nationality				
Saudi (n=330)	252 (76.4)	51 (15.5)	27 (8.2)	0.89
Non-Saudi (n=3)	2 (66.7)	1 (33.3)	0 (0.0)	(0.641)
Residency location				
Tabuk city (n=305)	229 (75.1)	50 (16.4)	26 (8.5)	2.86
Rural area of Tabuk (n=28)	25 (89.3)	2 (7.1)	1 (3.6)	(0.239)
Marital status				
Single (n=22)	16 (72.7)	2 (9.1)	4 (18.2)	
Married (n=290)	219 (75.5)	49 (16.9)	22 (7.6)	6.24
Divorced/widowed (n=21)	19 (90.5)	1 (4.8)	1 (4.8)	(0.182)
Educational level				
Illiterate (n=113)	111 (98.2)	2 (1.8)	0 (0.0)	
Primary school (n=41)	35 (85.4)	4 (9.8)	2 (4.9)	
Intermediate school (n=24)	22 (91.7)	1 (4.2)	1 (4.2)	
High school (n=101)				
University (n=54)	60 (59.4)	30 (29.7)	11 (10.9)	80.53
	26 (48.1)	15 (27.8)	13 (24.1)	(<0.001)
Income (SAR/month)				
<5000 (n=37)	36 (97.3)	1 (2.7)	0 (0.0)	
5000-10000 (n=137)	107 (78.1)	20 (14.6)	10 (7.3)	13.07

>10000 (n=159)	111 (69.8)	31 (19.5)	17 (10.7)	(0.011)
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Table 7:- Factors associated with participants` confidence in noticing breast changes

	Confidence in noticing breast changes		χ^2 (p-value)
	Not at all confident N=257 N (%)	Slightly/fairly confident N=50 N (%)	
Age in years			
18-29 (n=46)	40 (87.0)	6 (13.0)	
30-39 (n=115)	82 (71.3)	33 (28.7)	
40-49 (n=69)	58 (84.1)	11 (15.9)	
50-59 (n=49)	49 (100)	0 (0.0)	28.33
≥60 (n=28)	28 (100)	0 (0.0)	(<0.001)
Nationality			
Saudi (n=304)	255 (83.9)	49 (16.1)	
Non-Saudi (n=3)	2 (66.7)	1 (33.3)	0.414*
Residency location			
Tabuk city (n=286)	238 (83.2)	48 (16.8)	
Rural area of Tabuk (n=21)	19 (90.5)	2 (9.5)	0.303*
Marital status			
Single (n=22)	19 (86.4)	3 (13.6)	
Married (n=269)	222 (82.5)	47 (17.5)	3.50
Divorced/widowed (n=16)	16 (100)	0 (0.0)	(0.173)
Educational level			
Illiterate (n=88)	87 (98.9)	1 (1.1)	
Primary school (n=40)	34 (85.0)	6 (15.0)	
Intermediate school (n=24)	23 (95.8)	1 (4.2)	
High school (n=101)	81 (80.2)	20 (19.8)	42.05
University (n=54)	32 (59.3)	22 (40.7)	(<0.001)
Income (SAR/month)			
<5000 (n=28)	27 (96.4)	1 (3.6)	
5000-10000 (n=128)	110 (85.9)	18 (14.1)	5.78
>10000 (n=151)	120 (79.5)	31 (20.5)	(0.056)

* Fischer exact test

Table 8:- Factors associated with seeing doctors about noticed breast changes

	Seeing a doctor about noticed breast changes			χ^2 (p-value)
	Yes N=92 N (%)	No N=92 N (%)	Never noticed breast changes N=151 N (%)	
Age in years				
18-29 (n=47)	6 (12.8)	5 (10.6)	36 (76.6)	
30-39 (n=115)	28 (24.3)	28 (24.3)	59 (51.4)	
40-49 (n=69)	22 (31.9)	11 (15.9)	36 (52.2)	
50-59 (n=65)	25 (38.5)	24 (36.9)	16 (24.6)	63.31
≥60 (n=39)	11 (28.2)	24 (61.5)	4 (10.3)	(<0.001)
Nationality				
Saudi (n=332)	90 (27.1)	92 (27.7)	150 (45.2)	2.62
Non-Saudi (n=3)	2 (66.7)	0 (0.0)	1 (33.3)	(0.270)
Residency location				
Tabuk city (n=305)	85 (27.9)	78 (25.6)	142 (46.6)	6.29
Rural area of Tabuk (n=30)	7 (23.3)	14 (46.7)	9 (30.0)	(0.043)
Marital status				

Single (n=22)	2 (9.1)	3 (13.6)	17 (77.3)	
Married (n=292)	82 (28.1)	80 (27.4)	130 (44.5)	15.19
Divorced/widowed (n=21)	8 (38.1)	9 (42.9)	4 (19.0)	(0.004)
Educational level				
Illiterate (n=114)	39 (34.2)	50 (43.9)	25 (21.9)	
Primary school (n=41)	14 (34.1)	6 (14.6)	21 (51.2)	
Intermediate school (n=25)	5 (20.0)	4 (16.0)	16 (64.0)	
High school (n=101)	17 (16.8)	24 (23.8)	60 (59.4)	47.37
University (n=54)	17 (31.5)	8 (14.8)	29 (53.7)	(<0.001)
Income (SAR/month)				
<5000 (n=38)	12 (31.6)	19 (50.0)	7 (18.4)	
5000-10000 (n=138)	33 (23.9)	36 (26.1)	69 (50.0)	16.15
>10000 (n=159)	47 (29.6)	37 (23.3)	75 (47.2)	(0.003)

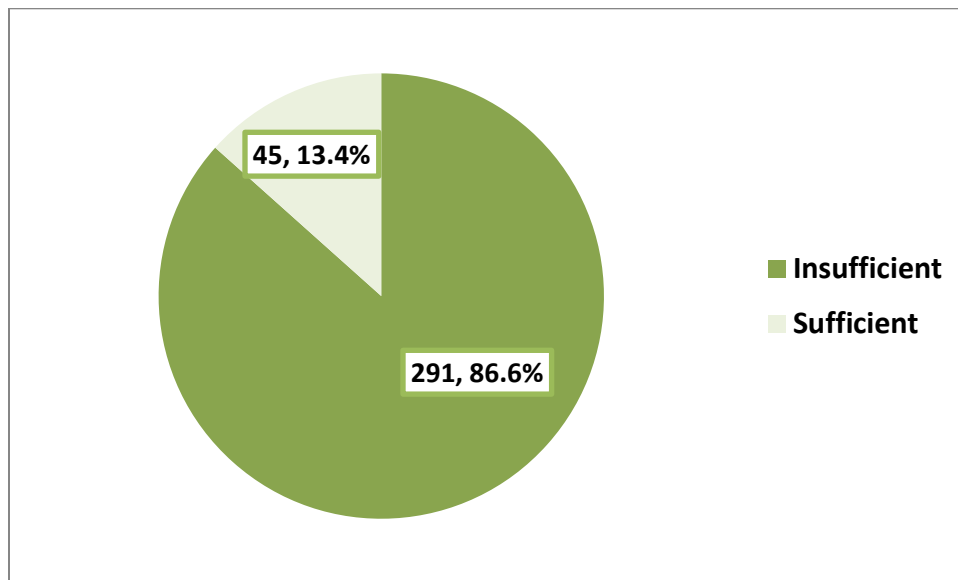


Figure 1:- Knowledge level of the participants regarding symptoms of breast cancer.

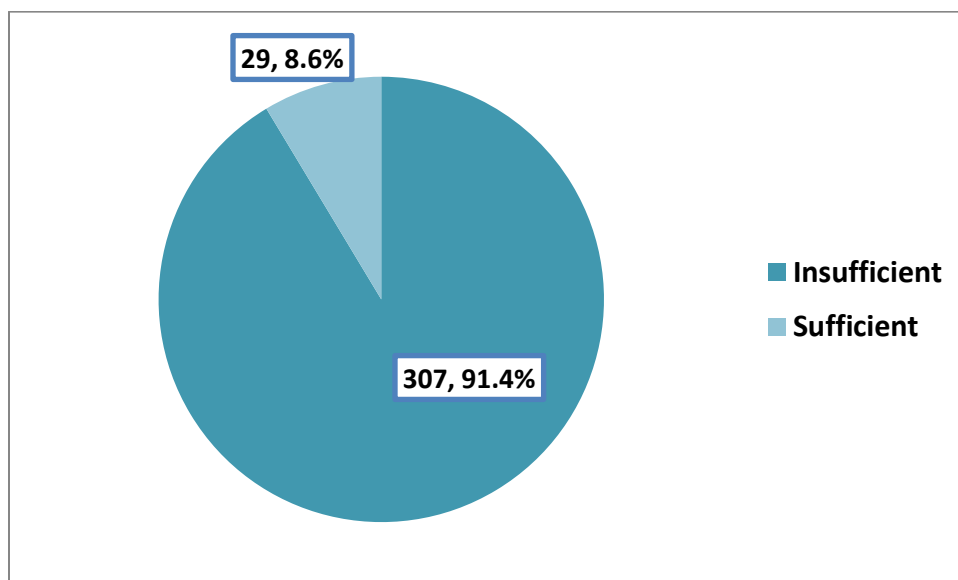


Figure 2:- Knowledge level of the participants regarding risk factors for breast cancer

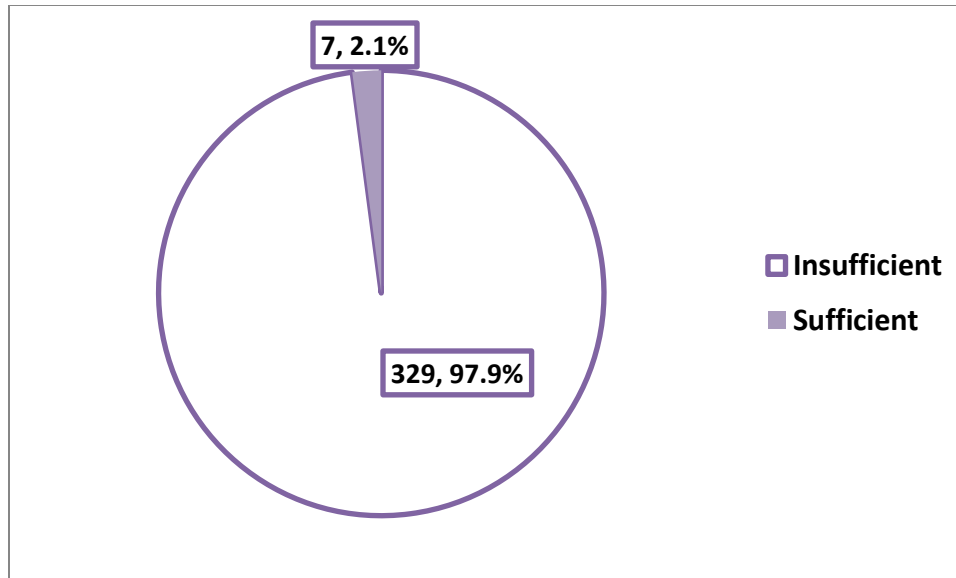


Figure 3:- Knowledge level of the participants regarding screening for breast cancer.

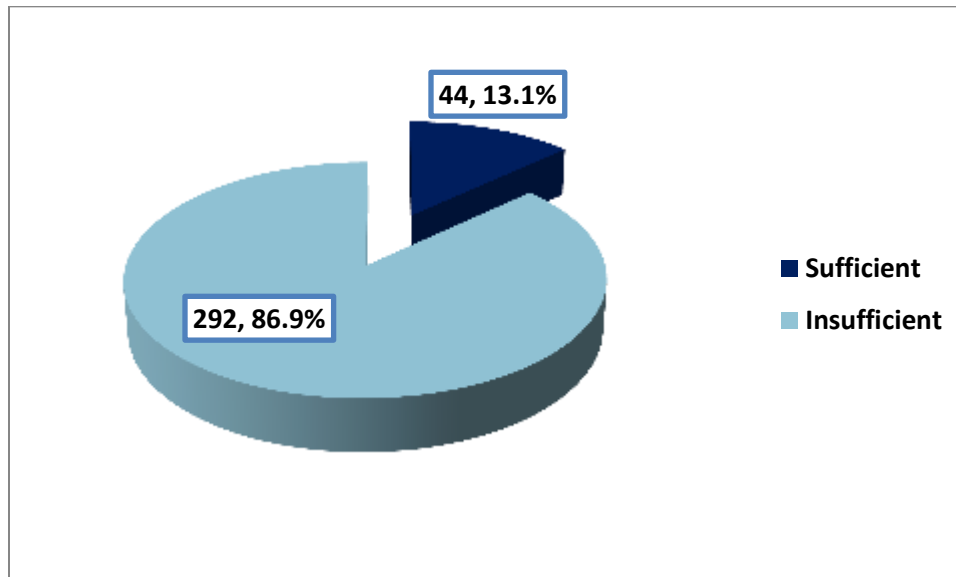


Figure 4:- Overall knowledge level of the participants regarding breast cancer.

Discussion:-

It has been evidenced that the occurrence of breast cancer in Arab world, including Saudi Arabia is about ten years younger than in European countries and USA.^[35, 36] Also, it is well known that diagnosis of breast cancer at early stages would enable better survival. In Saudi Arabia, as in developing countries, breast cancer cases are presented at late stages and consequently with bad prognosis.^[3]

Public awareness of breast cancer and its screening had significantly influence its early presentation.^[9] Therefore, this study was carried out to assess the knowledge and attitude about breast cancer among women in King Khalid Armed Forces Hospital, Tabuk.

Regarding knowledge of breast cancer symptoms, majority of the women (92.9%) in the current study could recognize presence of a lump or thickness in breast, 47.3% recognized pain in one breast, 27.7% recognized that presence of a lump or thickness under armpit, changes in the size of breast or nipple (27.7%) and discharge or bleeding from nipple (25.6%) as symptoms of breast cancer. In a previous study carried out Qassim Region, Saudi

Arabia, only 23% of the participants knew that breast cancer may present as breast lump, 18% recognized that it may present as pain in breast and 1.75% agreed that nipple discharge might be a symptom of breast cancer.^[14] In another more recent study carried out among University students in Al Madinah city, breast lump, pain, and nipple discharge were recognized by 55.3%, 58.7% and 65.3% of the students, respectively.^[15] In Oman, among women aged between 18 and 60 years, 19 % had poor knowledge, 59 % had average knowledge and 21% had good knowledge and only 1% had excellent knowledge about breast cancer symptoms.^[16] In Egypt, less than half of university students were aware of warning signs and symptoms of breast cancer.^[17] Worldwide; in United Kingdom, 18 % of the women recognized five or more from non-lump symptoms of breast cancer.^[18] In Uganda, 61.3% of the participant women had intermediate level of knowledge about signs and symptoms of breast cancer.^[19]

Regarding knowledge of breast cancer risk factors, 54.5% of women in the current study could recognize past history of breast cancer whereas 36.3% and 27.7% of them knew that using hormonal replacement therapy and having a close relative with breast cancer are risk factor for breast cancer. In a study carried out by Alam in Riyadh (KSA), 30% of the participants knew that use of oral contraceptives is a risk factor for breast cancer whereas 39.1% and 13.8% were aware of the facts that breast cancers may be hereditary and its risk increases with advancing age, respectively.^[20] In a study carried out among university students in Al-Madinah,^[15] hormonal therapy, hereditary and advanced age were recognized as risk factors for breast cancer by 36%, 77.3%, and 93.3% of the students, respectively. Participants' knowledge about some risk factors for breast cancer such as overweight, having children later on in life or not at all, starting periods at an early age, having a late menopause, physical inactivity and aged of 50 years was very poor. This necessitates the need to educate them more about the risk factors associated with breast cancer.

Concerning breast cancer screening, minority of the women in the present study could recognize that the age at which women first invited to breast cancer screening programme according to guidelines of Saudi Ministry of Health is 50 years (1.8%) and the age at which women receive last invitation to breast cancer screening programme according to guidelines of Saudi Ministry of Health is 69 years was recognized by only 0.3% of them. Also, in the present study, only 8% of the women reported that they were checking breast at least once per month whereas 15.5% checked them at least once every 6 months. Most of them (76.5%) were not at all confident in noticing breast changes whereas only 1.2% of the participants were fairly confident. Almost one-quarter of them (27.4%) saw a doctor about noticed breast changed whereas another 27.4% did not do this and 44.9% of the women never noticed breast changes. In a similar study carried out in UK, 52% women were confident about noticing the changes in their breast and 23 % were checking their breast at least once per month and about 73 % sought medical help within one week for noticing any breast changes.^[18] In a study carried out in Al-Madinah city among university students, 50.7% confirmed practice of breast self-examination (BSE).^[15] Kashgari and Ibrahim in a survey of Saudi women in Jeddah noted that only 12% of the respondents performed BSE.^[21] Similarly Ravichandran et al., reported from Riyadh region that only 23.1% of the subjects performed BSE.^[22] In Abha, 41.5% of women attending primary health care centers knew the breast self examination and only 29.7 % performed breast self examination .^[23] In Malaysia, 25.5 % of women aged over 20 years performed breast self-examination.^[24] In Nigeria, 70.7 % of women reported that they didn't know how to perform breast self-examination and only 8.1 % knew the exact time of performing breast self examination.^[25] In Bangladesh, only 8% of women aged 30-59 years reported doing clinical breast examination.^[26] In Uganda, 76.5% of university students performed breast self-examination.^[19] In Yemen, 89% of women had never performed breast cancer screening.^[27] In Egypt, only 8.8 % of university students identified the time of performed breast self-examination and only 1.3 % performed it regularly every month.^[17] In Gaza city, 75 % of women had never undergone clinical breast examination, 24.6 % were not knowing any screening methods and about half had misconception about breast screening.^[28] In Iraq, 30.3 % of women aged between 18 and 55 years performed breast examination and 42 % did not know how to perform breast self examination.^[29]

The relatively low rate of practicing BSE in this study may be due to the female modesty which is considered a virtue in Islam. In addition, a cancer diagnosis is often associated with a stigma in KSA.^[30] So the women may not undergo breast cancer screening out of fear. Also, strict gender segregation is the social norm in KSA. Although religious guidelines allow Muslim women to take care of their health, and have their bodies examined by health care professionals for medical reasons,^[31] there is strong preference for a female health professional.^[32,33] The reason could be the objection raised by their husbands or male relatives to breast examination as males are considered the guardians of the females in middle east.^[34] Lastly, in KSA, the women are caretakers and tend to spend all their time focusing on the needs of family members before they focus on their own health needs.

In the present study, the sufficient knowledge regarding breast cancer was observed among 13.1% of the participants, which is lower than that reported in another study carried out among University students in Al-Madinah,^[15] where 70.9% of the participants had good knowledge regarding different aspects of breast cancer. Also, it is lower than that reported in Yemen where two third of women had poor knowledge about breast cancer.^[27] In Jordan, 51.8% of women were aware of breast cancer.^[35] In Iraq among 508 women between 18 and 55 years, 61.2 % had poor knowledge about cancer breast.^[29] In Kuwait, 43.1% of women had overall good knowledge about breast cancer symptom and risk factors.^[36] The clear difference between these studies and our study could be attributed to variation in the characteristics of the target population as well as cultural and social norms prevail in the Saudi Society.

Variables that might affect the level of knowledge as revealed by the Logistic regression analysis in the present study were women's age and education level. This has been documented in another study.^[37] Also, the role of high education in increasing awareness regarding breast cancer has been confirmed in a study carried out by Amin et al in Saudi Arabia.^[38]

In the present work, checking of the breasts at least once per month was more reported by younger, higher educated women and those with higher income. The same has been reported by other local^[23] and international studies.^[18]

This study has some few limitations including recruitment of women from one health care facility in Tabuk (King Khalid Armed Forces hospital), so the findings of the study cannot be generalized. The cross-sectional design of the study doesn't prove causality between independent variables and dependent one. Despite these limitations, studies like this can enhance the knowledge regarding breast cancer among women in our society

Conclusion:-

Results of the current study suggest that minority of adult women attending family medicine clinic and women health center, King Khalid Armed Forces hospital, Tabuk have sufficient knowledge of breast cancer symptoms, risk factors and screening. Younger and higher educated women were more knowledgeable than others in this regard.

Regarding breast cancer symptoms, with the exception of lump or thickness in breast, knowledge was suboptimal. Concerning risk factors, important risk factors were unknowledgeable to women such as early menarche, late menopause and nulliparity. Regarding screening, knowledge was frustrating.

Most of the women rarely or never checked their breast and only 8% did this at least once a month. Also, most of them were not at all confident in noticing breast changes and almost one-quarter of them saw a doctor about noticed breast changes.

Recommendations:-

Based on results of the present study, the following are recommended

1. There is an urgent need to enforce knowledge of women attending family medicine clinic and women health center, King Khalid Armed Forces hospital, Tabuk regarding various issues related to breast cancer, through health education in the clinic for breast cancer . particularly for older and lower educated women.
2. Using screens in waiting area for educational video about breast cancer .
3. Encourage women to check their breast and educated them about the correct method and appropriate time for that.

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