

## RESEARCH ARTICLE

# Do Saudi Nurses in Primary Health Care Centres have Breast Cancer Knowledge to Promote Breast Cancer Awareness?

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### Abstract

**Background:** Breast cancer is one of the leading causes of death among cancer patients in Saudi Arabia. It is known that nurses play a key role in promoting breast cancer awareness among women in any society. Nurses in primary health care centres (PHCC) have more direct contact with general population. This study aimed to investigate nurse knowledge of breast cancer and practice of early screening in PHCC in Jeddah city. **Methods:** A cross-sectional study was conducted using a self-administered questionnaire to assess the general knowledge of breast cancer, risk factors, and practice of 210 PHCC nurses. Data were analysed using SPSS v.16. **Results:** The mean age of the PHCC Nurses was 36.9 (SD  $\pm$ 8.6). Only 11% percent scored <50% of the total score for general epidemiological knowledge on breast cancer, about 35% scored <50% of the total score for breast cancer risk factors. Sixty seven percent scored >75% of the total score on breast cancer signs. Majority of nurses 62.8% practiced BSE, but only 4% practiced regularly every month. Some 28% practiced once per year. About 81% of the nurses had not had a clinical breast examination and only 14% had had a mammography. The results of the study failed to show any correlation between the knowledge scores with age, education, year of experience, family history of BC and marital status of the nurses. **Conclusion:** The results from the study reflect that there is a need to provide continuing nursing education programmes for PHCC nurses to improve their breast cancer knowledge and practice .

**Keywords:** Saudi nurses - breast cancer - awareness - primary health care centre - breast cancer screening

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### Introduction

Breast cancer (BC) is a major health concern around the globe. Currently it is the most common cancer among women in both developed and developing countries and is one of the leading causes of death in female worldwide (WHO, 2012). Diagnosis of BC at the late stage in the majority cases is due to lack of awareness and barriers to access to health services (WHO, 2012). In Saudi Arabia, it was found that BC is the most common cancer and ranked as a second cause of cancer death among Saudi women (Saudi Cancer Registry, 2007). It has been observed that BC is presented late and in the advanced stage in Saudi Arabia when compared to other nations (Ezzat et al., 1999). Another characteristic of BC in Saudi Arabia is that the majority of cases are under 45 years of age. (Abulkhair et al., 2010).

Early detection of breast cancer greatly increases the chances for successful treatment (Harmer, 2011). There are two main components to promote early detection of breast cancer. Firstly enhance early diagnosis and screening.

Second recognizing signs of breast cancer and taking prompt action. Therefore, promotion of awareness and early screening in the general female population may help to detect the disease at early stage as facilitate treatment (Burgess et al., 2009, Abulkhair et al., 2010, Forbes et al., 2011).

Nurses have a major role to play in teaching women in the community and in influencing women's behavior (Taşçı and Usta, 2010; Oluwatosin, 2011), especially those nurses working in the primary health care centres (PHCC). PHCC nurses have a crucial role in disseminating breast cancer awareness among women in the community. However, in Saudi Arabia, to our knowledge assessment that has been published about nurses' knowledge towards BC, its risk factors and screening methods are not found. Therefore, the purpose of this study is to identify the knowledge and practice of PHCC nurses in relation to BC risk factors and screening methods for early detection. The findings of this study will be used by the research team to develop a programme for PHCC nurses about breast cancer detection and screening.

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Breast cancer is globally the most common cancer among female. In the Kingdom of Saudi Arabia, breast cancer ranks the highest rate 27.4% of all female cases with mean age of 47 years (Saudi Cancer Registry, 2007). The National Cancer Registry in 2007 reported that breast cancer represented 13.8% of all cancers among Saudi population, with age specific incidence rate of 21.6/100,000 among adult females. Western Province (Mecca region) ranked second region in Saudi Arabia, with BC representing 32.4% of all cases with an age specific incidence rate of 28.8/100,000 women. In spite of the low incidence of breast cancer in Saudi Arabia compared to the Western countries for example US and UK both have the BC age specific incidence rate of 124.3 per 100,000 (National Cancer Institute 2012 in US and UK). Saudi healthcare professionals especially nurses need to be ready to face the challenge of future foreseeable increase of BC among young Saudi females.

Breast cancer causes of increased morbidity and mortality among women. Morbidity and mortality could be reduced through early detection screening programmes (Austoker et al., 2009), because detection of breast cancer in its early stages may lead to better cure of the disease (Chong, 2002). It is therefore, important that healthcare providers inform women about the appropriate breast cancer screening methods which include breast self-examination (BSE), clinical breast-examination (CBE) and mammography (Hacihanog and Gozum, 2008; Austoker et al., 2009; Lee et al., 2010; Oluwatosin, 2011; Secginli and Nahcivan, 2011). The PHCC nurses are the best situated to achieve this and may initiate a supportive environment to implement these concepts.

It has been observed that nurses who possess sufficient knowledge about breast cancer can facilitate teaching and to be effective educators in promoting early breast cancer detection (Herman et al., 1996; Soyer et al., 2007; Hacihanog and Gozum, 2008; Ceber et al., 2010; Lee et al., 2010; Tessaro and Herman, 2000). The Royal College of Nursing (RCN) stated that nurses play an essential role in teaching BSE (RCN, 2004). Seah and Tan (2007) recommended nurses to promote breast cancer screening indeed it has been observed that nurses are the strongest motivating factor to women when deciding a mammogram (Yarbro, 2003; Demirkiran et al., 2007; Ceber and Ciceklioglu, 2010). So strong is the influence that has been suggested that nurses represent as role models for the women to seek breast screening programmes (Chong et al., 2002; RCN, 2004)

Before advising or acting as a role model it is essential that a nurse must awareness of screening methods: breast self examination (BSE), clinical breast-examination (CBE), and mammography. BSE is convenient and simple for detecting changes in breasts (RCN, 2004, Secginli and Nahcivan, 2011). CBE is recommended every 3 years for women at age 20s and 30s and yearly for women at 40 and older. Routine mammography screening could also significantly reduce the mortality rate in breast cancer (Nyström et al., 2002). It is advised that women at age of 40 to have yearly mammography to detect BC (American Cancer Society, 2012). However, the practice of any of these screening measures is based on the awareness

of individual. Insufficient knowledge among nurses, they will not be able to effectively to promote these life saving methods (Oluwatosin, 2011) Various risk factors for breast cancer have been reported such as increasing age, hormone replacement therapy (HRT), high dietary fat, excessive alcohol consumption, smoking and family history among others (Downs-Holmes and Silverman, 2011). Understanding of these risk factors and different preventive measures are very important for nurses to facilitate teaching.

## Materials and Methods

Four hundred and twenty nurses working in PHCC were recruited for the study through the General Directorate of Primary Health Centers in the city of Jeddah. The study was a descriptive study carried out from March to June 2011 on a group of PHCC Saudi female nurses in Jeddah city as part of needs assessment to determine if training programme on breast cancer is needed for PHCC nurses.

A self-administered questionnaire in Arabic was distributed to a total of 420 PHCC nurses. Only 250 returned the questionnaire, giving a response rate of 60%. Out of 250, 30 had incomplete information and 10 non-Saudi nurses were excluded. The questionnaire was attached with a letter to confirm the confidentiality of the data. Ethical approval was obtained from the ethical committee of the Medical College at King Abdulaziz University. Returning the questionnaire indicates the approval of respondents and their willingness to participate in the study. Oral consent was obtained from the participants and returning the questionnaire further indication their willingness to participate.

The instrument was an Arabic questionnaire designed for the purpose of the study and used to collect the data. The validity of the instrument was assessed by a group of experts in the fields. The reliability of the instrument was identified by using Cronbach alpha (0.8). The instrument was piloted on a group of 5 nurses to assess the easiness of the wording used in the instrument and corrections were made accordingly. Data were collected on socio demographic characteristics, knowledge of breast cancer, its risk factors, signs and symptoms of breast cancer and screening methods as well as practice of breast self examination (BSE) and mammography.

Scoring: Knowledge of breast cancer facts, risk factors and signs of breast cancer were assessed by requesting the respondents to select yes or no or don't know about each statement related to the three concepts. Thereafter, each correct response was scored two (2) points and each wrong response and don't know were scored zero (0). The total score ranged from 0-9 for knowledge of breast cancer facts. Respondents with scores less than 4.5 (<50%) were considered to have poor knowledge, those with scores 4.5-7.2 (>50%) had a fair knowledge while those with above 7.2 points (>80%) had good knowledge. The total score ranged 0-15 for the breast cancer risk factors. Respondents with scores less than 7.5 (<50%) were considered to have poor knowledge, those with scores 7.5-11.9 (>50%) had a fair knowledge while those with above 11.9 points (>80%) had good

knowledge. The total score ranged from 0-8 for signs of breast cancer. Respondents with scores 0-3 (<50%) were considered to have poor knowledge, those with 4-5 (>50%) points had fair knowledge while those with 6-8 (>80%) points had good knowledge. For mammography, the respondents were assessed to answer 10 questions pertaining appropriate age for mammography, frequency, and the belief about mammography. The practice of BSE and mammography was assessed for the nurses and compared with some selected demographic variables. Data analysis was done using the SPSS version 16.0 statistical package with significant at  $p < 0.05$ .

## Results

### Demographic data of the participants

One hundred and ninety three (92%) of the nurses did not receive any kind of BC training. Two hundred and three (97%) heard about BC but only 48 (23%) said that they had knowledge about BC. Seventy eight (37.1%) never practiced BSE. Only (4%) practiced BSE monthly. Table 1 shows the demographic characteristics of the participants. A total of 210 PHCC nurses with the mean age  $36.9 \pm 8.5$  years participated in the study. Most of them were married 148 (70.5%) and about 85% of the married nurses have children (mean  $3 \pm 1.7$  children). Twenty one percent of them were working in the vaccination room. Only 10% were working as nursing supervisor in the PHCCs. About (64%) of the nurses had practiced nursing more than 10 years. Thirty seven (17.6%) of the nurses had relatives with breast cancer. Of the nurses who had relatives with BC, 59% were from close relative (Table 2).

### Knowledge about breast cancer

The majority of participants had fair general knowledge about BC. Ninety one percent stated that BC is the most common cancer among women worldwide. Most of the participants (56%) did not know that BC can occur in men. Almost half of the sample (44%) believed that BC could be treated if detected early. One hundred and twenty six (60%) believed that women aged 45 were at higher risk to have BC than women aged 65. Fifty two percent knew that BC in Saudi Arabia was diagnosed at advance stage. The total mean knowledge scores were  $6.1 \pm 1.39$  (of 9). In relation to risk factors of BC and signs of BC the mean scores were  $8.36 \pm 3.01$  (of 15) and  $5.9 \pm 2.3$  (of 8) respectively (Tables 3 and 4). There was no significant relationship between the education background of the nurses and their knowledge about breast cancer.

### Breast cancer early screening practice

About 63% of the nurses had practiced BSE at least one occasion. Of these nurses 12% used middle three fingers during BSE. About 26% of the nurses, who had practiced BSE, always examine the breasts in front of the mirror. Nine percent never stand in front of the mirror to examine the breasts. Only 5% of nurses examine the breasts while lying on the back. Forty four nurses (33.6%) always use circular motion to examine the breasts. Eleven nurses (0.1%) never used circular motion during BSE. The majority (70%) of the nurses stated that BSE should

**Table 1. The Demographic Characteristics of the Participants (n = 210)**

Characteristics	No.	%	
Age group*	22-31	66	31.4
	32-41	80	38.1
	42-51	54	25.7
	52-59	10	4.8
Marital status	Single	34	16.2
	Married **	148	70.5
	Divorced	22	10.5
	Widowed	6	2.9
Education	Two year diploma	43	20.5
	Three year diploma	159	75.7
	Bachelor degree	8	3.8
Years of experience	<10	75	35.7
	10-20	92	61.0
	21-30	36	17.1
	31-41	7	3.3

\*Mean age  $37 \text{ SD} \pm 8.5$ , \*\*Mean number of children  $3 \pm 1.7$

**Table 2 Distribution of the Participants have Relatives with Breast Cancer (n = 210)**

Item	No.	%
Has relatives with breast cancer	37	17.6
Do not have breast cancer relatives	158	75.2
Do not know whether any relative has breast cancer	15	7.1
Total	210	100

**Table 3. The Participants' Response in Relation to Breast Cancer Risk Factors (n = 210)**

Breast Cancer Risk Factors	Correct		Wrong	
	No.	%	No.	%
Hormones and contraceptives usage	121	57.6	89	42.4
Hereditary factor	176	83.8	34	16.2
Have first child after the age of 30	46	21.9	164	78.1
Breast feeding	192	91.4	18	8.6
Early menarche	44	21	166	79
Late menopause	56	26.7	154	73.3
Wearing tight bra	47	22.4	163	77.6
Smoking	148	70.5	62	29.5
Consumption of fatty foods	114	54.3	96	45.7
Consumption of high fibres	141	67.1	69	32.9
Exercise	184	87.6	26	12.4
Advanced in age	99	47.1	111	52.9
Increasing in body weight	102	48.6	108	51.4
Family history	162	77.1	48	22.9
Taking mammography	132	62.9	78	37.1

**Table 4. The Participants' Response in Relation to Breast Cancer Risk Factors (n = 210)**

Signs & symptoms of Breast Cancer	Correct		Wrong	
	No.	%	No.	%
Change in breast size	161	76.7	49	23.3
Discharges from the nipples	161	76.7	49	23.3
Change in skin colour of breast (redness)	158	75.2	52	24.8
Appearance of lump	194	92.4	16	0.8
Swollen under armpit	163	77.6	47	22.4
Change the structure of the breasts	155	73.8	55	26.2
Bloody discharge	137	65.2	73	34.8
Inversion/retraction of the nipples	108	51.4	102	48.6



**Table 5. Nurses' Belief Towards Mammography**

Items	Yes		No		Don't know	
	No.	%	No.	%	No.	%
Painful	86	41	66	31	58	28
Takes long time to perform	53	25	96	46	61	29
Not safe	47	22	93	44	70	33
Causes embarrassment	90	43	87	41	33	16
Expensive	65	31	95	45.2	50	23.8
Fair from the result	132	62.9	53	25.2	25	11.9
Uncomfortable	71	33.8	86	41	53	25.2

be done on the fifth days of the menstrual periods. Only 41 (19.5%) had a clinical breast examination while 169 (80.5%) never have CBE.

#### *Practice of mammography*

The majority of nurses (86%) did not have a mammography. About 40% of the nurses believed that women do not need a mammography if they had a clinical breast-examination. Most of the nurses (77.6%) stated that women after 50 years old should have mammography annually. The nurses' belief towards mammography is illustrated in Table 5.

## Discussion

Knowledge of PHCC nurses about BC early detection is essential in order to promote BC awareness among women. Our study found that 71% and 51% of the PHCC nurses had fair general knowledge about BC and BC risk factors respectively. More than half of the nurses (67%) had good knowledge of BC signs and symptoms. These results are similar to that seen in other studies in Saudi Arabia (Yousuf, 2010), Nigeria (Odusanya and Tayo, 2001) and Singapore (Chong, 2004). This is in contrast to the findings of studies conducted in Nigeria (Akhigbe and Omuemu, 2009), Pakistan (Ahmed *et al.*, 2006), and Morocco (Ghanem *et al.*, 2011).

Regarding the general knowledge about BC, the majority (91%) of nurses knew that BC is the most common cancer among women in Saudi Arabia. Most of the nurses 56% did not know that BC could happen in men and 48% did not know that women above 65 years are at higher risk. This could be explained that PHCC nurses do not frequently see clients with BC and most of the women BC were diagnosed at younger age (Abulkair *et al.*, 2010)

Knowledge of BC risk factors among PHCC nurses is important so they can provide appropriate instruction for screening to women with high risk profile, especially in the Saudi Arabia where the practice of BC screening is not yet a well established among women. About half (51%) of the nurses in this study had general fair knowledge of BC risk factors similar to nurses in Singapore (Chong, 2004). However, only a small proportion (22%) of the nurses identified that having the first child after 30 as a risk factor. This could be explained the fact that most of the female get married at early age before 30 in Saudi Arabia. Only 21% and 27% of the nurses knew that early menarche and late menopause onset could increase with BC risk. Very few nurses 9% and 3% knew that consumption of fibers and exercise respectively may reduce the risk of

BC. About 51% of nurses did not know that increase in body weight may place the women at risk of BC. These issues need to be emphasized since the obesity is increasing among Saudi population and the sedentary life is observed among Saudis. More than half of the nurses 53% did not know that the BC risk increases with age in women's lifetime. Although 84% of the nurses knew that positive family history of BC is one of the risk factors for development of BC but the results of the study showed no relationship between knowledge scores and nurses who had relatives with BC. While many studies found those who had relatives with BC had better knowledge (Madanat and Merrill 2002; Sreedharan *et al.*, 2010). Insufficient knowledge on some risk factors among PHCC nurses may indicate that some nurses were not updating their information or were not directly involved in patient education as indicated in Alkhasawneh's (2009) study. The findings of this study showed the importance of continue education (CE) for the PHCC nurses to promote early detection and prevention of BC.

Regarding to signs and symptoms of BC, majority of the nurses (67%) had good scores (mean=5.9±2.27 total score of 8). Only about 3% of the nurses knew all the three BC screening methods namely, breast-self examination, clinical breast examination and mammography. The misconception of mammography may increase the risk of BC is observed only in 14% in this study in compare to other study conducted in Saudi Arabia Eastern Province (Maha and Abdel 2000). This may explain that the majority of the nurses 86% did not have a mammography done.

Only about 4% of the nurses reported practicing BSE regularly while other studies conducted in different countries such as Jordan, United Arab Emirates and Korea more nurses performed BSE monthly 21%, 22.8% and 61.5% respectively (Alkhasawneh *et al.*, 2009; Lee *et al.*, 2010; Sreedharan *et al.*, 2010). This difference may be explained that the majority of nurses in the current study were from diploma school whereas the nurses in Korean study were Bachelor degree and above. In addition, the BC campaign in Saudi Arabia was a new concept and premature as compared to other countries. More than 3/4 of the nurses did not go for clinical breast-examination although most of them (68.6%) were 30 years old. The lack of personal BC screening is critically high among the nurses. Since nurses are the role model and promoter for BC early detection this may indicate that the campaign for breast awareness is insufficient and in need of serious attention. Provision of information about early detection methods may help in advancing the PHCC nurses' skill in identifying breast cancer cases. The issue needs to be investigated to identify the barriers that prevent nurses from having clinical breast-examination.

Only a very small number (8%) of the nurses received training on BC. Not attending any BC related training either as CE or seminar suggest that either such CE are arranged during the busy time where nurses unable to attend or the nurses lack interest to attend, this area needs further exploration. About 76% of the nurses in this study from diploma school therefore did not show significant difference in the knowledge and background of the nurses. The importance of updating PHCC nurses' knowledge

after graduating from diploma school of nursing is observed in their self-evaluation of BC knowledge. Most of the nurses (60%) stated that they have little BC knowledge and keen to learn about BC.

In conclusion, in Saudi Arabia, like most other countries, nurses are the major healthcare professionals but the majority had certain insufficient knowledge of BC, BC risk factors and screening methods. Most of the nurses have performed BSE but not on monthly basis. Very few nurses had CBE ever or mammography done. Having family members with breasts cancer did not result in an increase in knowledge of the nurses nor affect their practice to initiate early detection practice. It is important and essential that nurses are well trained and educated on BC especially PHCC nurses as they have the key role to play to inform the general public attending PHCC and promote early prevention and diagnosis of BC. Regular updated courses for PHCC nurses are recommended. Further studies are needed to investigate the barriers that prevent Saudi nurses having their breast checked by BSE, CBE and mammography.

Breast cancer is the leading causes to cancer death. PHCC nurses need to have good knowledge to detect women who may be at high risk for developing breast cancer. In this study, nurses reported that they were not involved in teaching women. Thus in future studies need to explore the reasons for nurses in PHCC not involved in teaching and promoting breast cancer screening. In addition, nurses felt less confident and comfortable to teach women about breast cancer. More training related to breast cancer is suggested for Saudi PHCC nurses to enhance their knowledge and skill to detect high risk women. Saudi PHCC nurse should be given autonomy as in high income/developed countries in BC prevention and screening.

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