

Do Women in Saudi Arabia "Think Pink"?

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Abstract

OBJECTIVES: Although breast cancer is the most common type of cancer among females in Saudi Arabia, several studies have reported misconceptions and lack of awareness about mammography screening. The purpose of this study was to use breast cancer awareness month and assess knowledge level of women in all regions of Saudi Arabia with regards to mammography screening tests.

METHODS: Seven hundred and twenty two women participated in the study by completing an anonymous questionnaire. Data was collected electronically throughout the month of October 2011. The questionnaire included a demographic section as well as other sections to assess breast cancer knowledge, risk factors and mammography screening practice. An association between how much women knew about mammography and their age group, occupation, monthly income, education level, and area of residence was investigated.

RESULTS: Seventy nine percent of the subjects recognized activities and campaigns for breast cancer taking place during that month. The most identified risk factor was family history (89%) followed by smoking (60%). While, 477 (66%) admitted mammography was useful for early detection, but only 249 (35%) identified the correct age for screening. Fifty percent of the participants recognized the correct screening frequency.

This was affected by several variables like occupation ($p=.0010$), monthly income ($p=.0008$), and area of residence ($p=.0001$).

CONCLUSION: Although breast cancer awareness activities and campaigns are widespread in the country, its knowledge is still insufficient among women. More efforts are needed to develop a positive attitude towards mammography screening tests in the country.

Keywords: Mammography Practice, Breast Cancer Risks, Women awareness, knowledge assessment

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Introduction

Breast cancer is the second leading cause of cancer deaths among women in developed countries as well as in Saudi Arabia. According to the most recent report by Saudi Cancer Registry (SCR), it constitutes to 26% of all cancer incidents in women with the highest rate occurring in the age group between 30 and 44.¹

The number of breast cancer cases has doubled over the past 10 years and as currently 50% of the Saudi population is under the age of 20, a dramatic increase in both incident rate (350%) and mortality rate (160%) over the coming decade is anticipated.² Although, the age standardised rate (ASR) for breast cancer in Saudi Arabia represents low incidents (17 per 100,000), this might be a reflection of the absence of a national screening program, lack of awareness, and unreported cases. In comparison, the United States of America (USA) has a 99 per 100,000 ASR due to active and efficient screening programs running for decades.³ Therefore, increasing the early detection rate among community members is vital.

Mammography screening in Saudi Arabia is still at its early stages. There are several pioneering efforts by doctors in the field, but no national screening program exists. The consequence of low cancer awareness is late presentation and diagnosis of the disease, leading to increased mortality rates.⁴ The practice of regular mammography screening tests among women is directly related to their perceptions about breast cancer, their level of knowledge and beliefs about early detection of the disease.

Cultural beliefs, as well as, several socio-economic factors are the biggest contributors towards delay in seeking medical attention and to get a feedback by the medical community about its prevalence, therefore, several measurement tools have been developed to assess level of mammography adherence.⁵ Educating the general public, both male and female of all age groups can develop a positive attitude towards mammography; information can help reduce the social barriers that currently lead to the late presentation of the disease.

October is celebrated as national breast awareness month, every year, around the world to spread awareness about the disease. According to the World Health Organization, the Breast Cancer Awareness Month, marked in countries across the world every October, to increase attention and support for the awareness, early detection and treatment as well as palliative care of this disease.⁶ The National Breast Cancer Awareness Month was started in 1985 in USA by American Cancer Society and a pharmaceutical company to promote mammography as the most effective weapon in the fight against breast cancer. Later the pink ribbon was taken up as a symbol for breast cancer awareness.⁷ Awareness programs, pink ribbon campaigns, and activities during this month have helped communities worldwide to raise awareness and overcome problems related to this dreaded disease. With rising cases of breast cancer in the Gulf Cooperation Council (GCC) and Saudi Arabia there has been an increased awareness campaign during October every year.

Research conducted in Saudi Arabia has exposed low levels of knowledge among women about breast cancer, its risk factors, and screening tools. Most of these studies were performed on a specific group like students, teachers, nurses, or healthcare providers of one institution within one region of the country. In general, unsatisfactory knowledge levels about screening tools have been identified by other researchers in the field.⁸⁻¹³

The first population based study was conducted by Amin et al. in 2009⁹ to assess the knowledge level of 1,315 women at primary healthcare centers in the eastern region of Saudi Arabia. In the same region, 300 healthcare workers at a university hospital were surveyed and the results showed below average scores on breast cancer screening knowledge for a highly educated group.¹¹

Education of professionals and the general public had played an important role in significantly decreasing the mortality rate in USA. Unfortunately, this is still not the case in Saudi Arabia, as a developing country with social and cultural barriers, the knowledge level even among educated professionals is still not up to the acceptable level.

The access to good quality health care highly influences breast cancer survival outcomes, therefore, a couple of charitable and government screening centers have been established since 2007. The use of public health programs, awareness activities in public places (such as shopping areas, banks, school, etc.), and use of media has shown promising outcomes. According to Abulkhair et al. these tools have increased the number of women that showed up for screening by a factor of 10. They have managed to screen 2500 women in 18 months in one charitable centre dedicated for screening in the central region.¹⁴

All previous studies have a common limitation, a homogeneous population: a specific targeted population (with same education level, income, occupation) in a specific region of the country. Therefore, this study aimed to assess knowledge levels of breast cancer,

risk factors, and practice of mammography screening among a wider female population in all regions during breast cancer awareness month. This was accomplished by utilizing the wide spread social networking websites, emails, and using the October activities that targeted breast cancer awareness in Saudi Arabia.

Methods

An observational descriptive study took place during the month of October 2011 where women were asked to participate as part of the awareness activities. It was advertised in event sites and through social networking sites. An electronic questionnaire was used to reach a large population of women in all regions of Saudi Arabia.

An anonymous closed-ended questionnaire was developed and tested. The overall reliability of the questionnaire was 0.7 based on Cronbach's alpha. After a double translation, an Arabic version of the questionnaire was used electronically to collect the data. It consisted of a demographic section and questions on awareness campaigns in Saudi Arabia, breast cancer perception and family history. The main part of the survey included 7 questions to assess women's' knowledge about mammography screening and identification of risk factors. These were based on the Gail model for estimating female risk for breast cancer in addition to recently updated factors such as obesity, use of contraceptives...etc.¹⁵

Data was only collected for the month of October. The data was analyzed using Megastat version 10.1 and chi-square cross tabulation was used to find correlation between the variables. Statistical significance was considered at *P*-value less than 0.05.

The questionnaire and study proposal was approved by the Biomedical Ethics Research Committee of King Abdulaziz University-Jeddah, Saudi Arabia (approval no. 609-11).

Results

Seven hundred and thirty-five questionnaires were received, but only 722 were found complete and considered for the analysis. Table 1 shows the socioeconomic characteristics of the participants. The majority of respondents, 79%, were between 21 to 40 years of age followed by 13% who were between the age group of 41 to 50 years. Fifty-five percent were married, 39% were single, and 6% were either divorced or widowed. Majority of the respondents, 462 (64%) had a university bachelor degree, 153 (21%) had high school diploma, and 107(15%) participants had higher educational qualifications (masters and PhD degrees).

Perception of breast cancer, knowledge of awareness campaigns in Saudi Arabia during this month, and family history of breast cancer are represented in Table 2. Several activities, events, and campaigns took place to promote better knowledge and encourage early detection throughout the country. Most of the participants, 79%, have recognized that.

When asked about the risk factors of breast cancer, the maximum factors identified by each participant were 7. These factors are presented in Table 3. The most identified risk factor was family history (89%) followed by smoking (60%). While the least identified factor was short periods of breast feeding (2%). The majority of risk factors were identified by women 30 years of age or younger. While, women over 50 years only managed to identify 2 to 3 risk factors.

Results from the four main questions that assessed participants' knowledge on mammography practice are shown in Table 4. Four-hundred seventy seven (66%) admitted its usefulness in early detection; however, only 249 (35%) identified the correct age for screening. In addition, 362(50%) of the participants recognized the correct screening frequency.

Table 1. Socioeconomic Characteristics of Study Population

Characteristics	Number (%)
Age (years)	
less than 20	38 (5%)
21 to 30	326(45%)
31 to 40	246(34%)
41 to 50	97(13%)
over 50	15(2%)
Education	
High School	153 (21%)
Bachelor	462(64%)
Masters	77(11%)
PhD	30(4%)
Occupation	
Don't work	251(34.9%)
Part Time	88(12%)
Full Time	350(49%)
From Home	32(4%)
Retired	1(0.1%)
Marital Status	
Not Married	282(39%)
Married	399(55%)
Divorced	25(4%)
Widowed	16(2%)
Monthly Income (in SR)	
Less than 8,000	106 (15%)
9000 to 15,000	191(27%)
16,000 to 25,000	233(32%)
26,000 to 40,000	125(17%)
More than 40,000	67(9%)
Area of Residence	
Western Region	442(61%)
Central Region	198(27%)
Eastern Region	74(10%)
Other	8(1%)

SR = Saudi Riyals

Table 2. Participants' perception about Breast Cancer, family history, and awareness Campaigns

Question	Number (%)
Do you think breast cancer leads to death?	
Yes	289(40)
No	433(60)
Do you have any family history of breast cancer?	
Yes	258(36)
No	464(64)
Are you aware of breast cancer campaigns & activities taking place this month?	
Yes	571(79)
No	151(21)

Table 3. Breast Cancer risk factors identified by the participants

Risk Factor	Number (%)
Advanced age	302(42)
Family history with breast cancer	642(89)
Smoking	433(60)
Obesity	261(36)
Delivery of first child after the age of 30	155(22)
Early menstruation	103(14)
Late menopause	99(14)
Short periods of breast feeding	16(2)
Use of contraceptive pills	216(30)

When asked about reasons for not going through mammogram screening tests if within the screening age, the highest percentage of chosen barrier was "scared from the results" followed by embarrassment, Figure 1. Assuming that their mammogram appointment was the following day, participants were asked to describe their feelings. Figure 2 summarizes their answers.

Table 4. Knowledge about Mammography practice

Question	Number (%)
How is your general knowledge about mammography?	
Excellent/Good	297(41)
Fair	180(25)
Poor	110(15)
I do not know	135(19)
Do you think that mammography is very useful for early detection of breast cancer?	
Yes	546(76)
No/ Not Sure	176(24)
When should a woman start having mammograms?	
15-20 yrs	25(4)
21-30 yrs	89(12)
31-40 yrs	249(35)
41-50 yrs	306(42)
Over 50 yrs	53(7)
At what frequency should a woman have her mammograms?	
Every six months	220(31)
Every year to two years	362(50)
Every five years	54(8)
If she feels a lump in her breast	77(10)
Never	9(1)

Two-hundred ninety seven (41%) participants from the study sample reported the highest positive perception on mammography practice. Of those, 129(43%) were between 31 to 40 years of age with a statistically significant ($p < 0.05$) effect of variables like education level, occupation, marital status and monthly income. The importance of mammography for early detection was identified by (546) 76% of the study population. There was a positive and statistically significant correlation with age group (0.0044), marital status (0.0001), and monthly income (0.0031) for this question. The correct screening age was not identified by 416(58%) of the participants, but all variables had a positive and statistically significant correlation ($p < 0.05$), Table 5. Fifty percent of the study population had identified the correct screening frequency. Most of them (85%) were 40 years of age or below. There was a positive correlation with occupation ($p = 0.0010$), monthly income ($p = 0.0008$), and area of residence ($p = 0.0001$).

Table 5. Knowledge of Mammography Practice by Personal Variables

	Positive general knowledge	Positive perception importance of early detection	Correct screening Age	Correct frequency of screening
	N= 297; 41%	N= 546; 76%	N= 306; 42%	N= 362; 50%
Age (years)				
less than 20	5(2)	23(4)	8(3)	22(6)
21 to 30	99(33)	234(43)	103(34)	163(45)
31 to 40	129(43)	201(36)	119(38)	126(35)
41 to 50	54(19)	74(14)	66(22)	45(12)
over 50	10(3)	14(3)	10(3)	6(2)
X ²	74.65	22.31	122.62	36.19
p-value	0.000*	.0044*	0.000*	.0027*
Education				
High School	43(14)	109 (20)	59(19)	82(27)
Bachelor	185(63)	348(64)	179(58)	222(61)
Masters	44(15)	59(11)	50(17)	39(11)
PhD	25(8)	30(5)	18(6)	19(5)
X ²	73.84	11.82	34.82	17.56
p-value	0.000*	.0660	.0005*	.1297
Occupation				
Don't work	84(28)	190(34)	91(29.7)	137(38)
Part Time	29(10)	60(11)	40(13)	40(11)
Full Time	161(55)	269(50)	159(52)	168(46)
From Home	21(7)	26(4.8)	15(5)	17(5)
Retired	0	1(0.2)	1(0.3)	0
X ²	45.41	8.58	27.29	39.28
p-value	.0001*	.3790	.0383*	.0010*
Marital Status				
Not Married	92(31)	200(37)	112(37)	147(41)
Married	187(63)	320(59)	171(56)	191(53)
Divorced	9(3)	13(2)	12(4)	16(4)
Widowed	9(3)	13(2)	11(3)	8(2)
X ²	28.44	29.44	39.43	9.96
p-value	.0048*	.0001*	.0001*	.6197
Monthly Income (SR)				
Less than 8,000	28(10)	73(13)	25(8)	52(14)
9000 to 15,000	60(20)	137(2)	70(23)	84(23)
16,000 to 25,000	90(30)	167(31)	106(35)	124(34)
26,000 to 40,000	75(25)	111(20)	76(25)	67(19)
More than 40,000	44(15)	58(11)	29(9)	35(10)
X ²	65.94	23.19	80.09	39.91
p-value	0.000*	.0031*	0.000*	.0008*
Area of Residence				
Western Region	174(59)	338(62)	161 (53)	202(56)
Central Region	93(31)	150(27)	105(34)	110(30)
Eastern Region	27(9)	54(10)	40(13)	47(13)
Other	3(1)	4(1)	0	3(1)
X ²	19.87	11.21	77.18	38.67
p-value	.0696	.0820	0.000*	.0001*

N=number of participants; (number in brackets) = percentages; * represents significance.

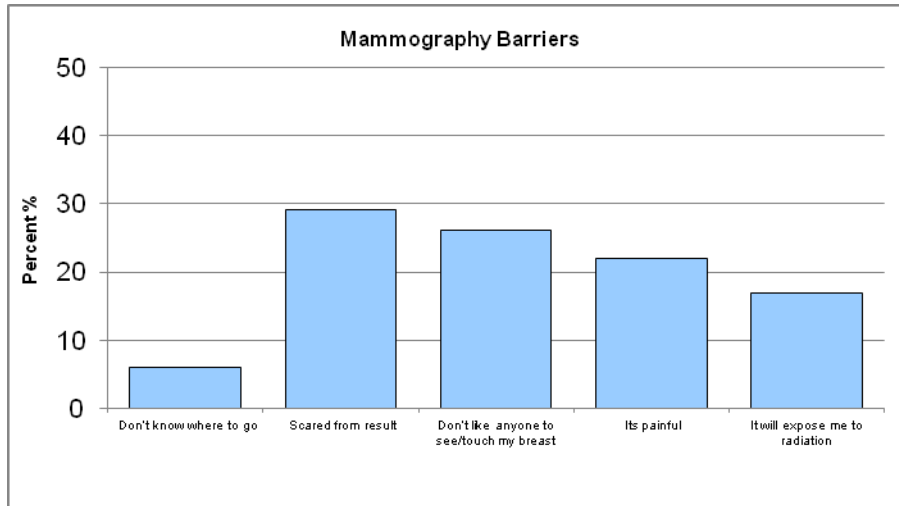


Figure 1. Barriers to having a mammogram.

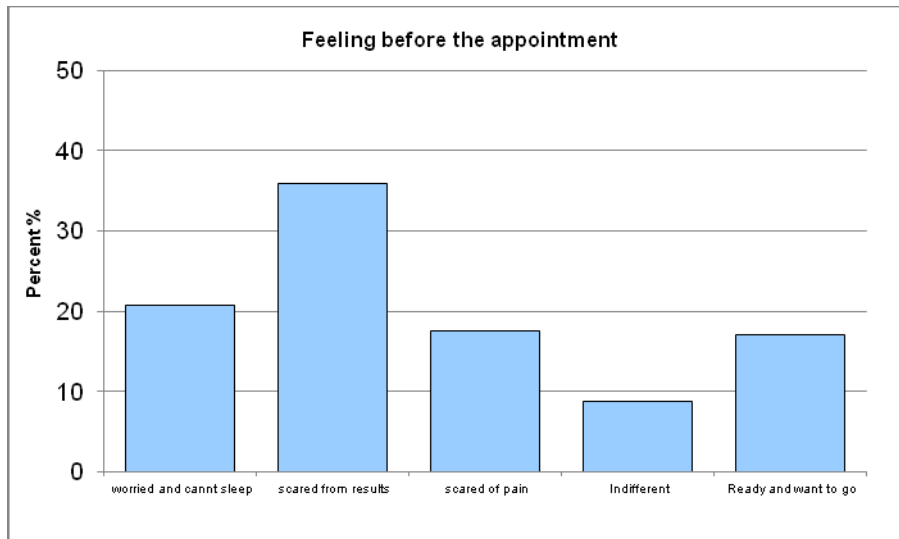


Figure 2. Participants' feelings before the mammogram appointment.

Discussion

Ever since FDA approved the use of tools for breast cancer screening, mammography has helped reduce mortality rate in USA by 35% in women aged between 50 and 69 [3].

In fact, the American Cancer Society has made it mandatory that all women over 40 be screened by mammograms. However, there are no structured national breast cancer screening programs in most of the Arab world. Specifically in Saudi Arabia, fear and misconceptions about mammograms have delayed early treatment and decreased the survival rate.¹⁶

The conservative nature of our society still prevents women from directly discussing sensitive issues with their healthcare providers; therefore, there is a vital need to educate both male and female members of the society to overcome knowledge deficits. Other factors like embarrassment and fear of social implications arising from our culture and absence of a national screening program is not making things any better. Breast cancer incidents are often presented at a late stage and usually among young premenopausal women.¹⁰ In Saudi Arabia, social and demographic factors have influenced the late presentation of the disease. Several recent studies that examined the knowledge and attitudes towards breast cancer and breast self examination (BSE) found that with increasing age, women doubted the benefits of early screening for breast carcinomas. It was shown that awareness about breast cancer screening was higher among younger women compared to older women over 50 years.⁸

Three hundred seventy six female teachers from 20 schools in the central region of Saudi Arabia were surveyed. Ninety percent of them were found to have poor knowledge and wrong beliefs. The subjects had the same level of education, income, background, and all lived in the same city.¹⁰ The study reported that only 9.3% of teachers identified mammography as a screening method. Another study that took place in the same region included 149 nursing students from two colleges, showed that 66% practiced BSE on regular basis and confirmed a positive relationship between perception and years of experience.¹³ Due to their specialty, 44% of the participants learned about BSE from their college curriculum.

Four hundred male students from three medical universities in the western region participated in a survey conducted to evaluate their knowledge on breast cancer and promote re-shaping of their health behaviors and beliefs.⁴ The study showed that 85% of the population did not know what mammograms are and they did not recognize most risk factors. This percentage is expected to further increase if participants were from outside the health professions. Similar results were observed among female high schools and colleges students.^{10-12,16,17}

As evident from the existing literature, studies on breast cancer screening and mammography in Saudi Arabia, has so far been done within a controlled population (i.e. at universities, colleges or schools within one region), which resulted in no variation in age , education level, occupation, region of residence of the participants. Ideally, awareness and educational campaigns should target population of all ages to reinforce the importance of early screening. The present study has managed to research electronically diverse women in the central, western, and eastern regions of the country.

Our study included women in all regions of Saudi Arabia and evaluated their awareness about breast cancer, risk factors, and mammography screening practice during breast cancer awareness month. We recognized that the effectiveness of breast screening programs always depends on the level of awareness among women. Their beliefs, attitudes, and cultural diffusion will influence the acceptability of participating in these programs. The importance of mammography for screening was identified by 546 (76%) of the study population. Monthly income and marital status were variables found to have a significant correlation ($p < 0.005$). Identifying the correct screening age was influenced by education level ($p = 0.005$), occupation ($p = 0.038$) and area of residence ($p = 0.00$). Only 362 (50%) of the participants recognized the correct screening frequency. This was affected by several variables like occupation ($p = .0010$), monthly income ($p = .0008$), and area of residence ($p = .0001$). Our study showed that embarrassment,

pain or discomforts are the reasons that have prevented around 45% of women from breast cancer screening.

Conclusions

Although this study demonstrated that breast cancer awareness activities and campaigns are widespread in the country, but more efforts are still needed. Adequate health education programs should be planned throughout the year and should be widely spread.

To our knowledge, this is the first study that attempts to measure the awareness level of the importance of mammography screening among women in all regions of Saudi Arabia. Educational efforts targeting the male population regarding female breast cancer can have a vital role in early detection. Empowering the male members of our society with the knowledge to help their mothers, wives, sisters, and daughters will reduce the stigma of breast cancer through familiarizing them with risk factors, prevention, and screening tools. Health education programs held by Ministry of Health should be conducted throughout the year in rural and urban areas of the country. Although there is some information about breast cancer screening in the media, it is still not reaching all members of the community.

Big efforts are still needed to promote the development of prevention by making breast cancer screening popular, regular practice, and an important public health principle. Thus, we recommend continued awareness efforts across acculturation levels, education backgrounds, geographic location, and socioeconomic strata. As this study was conducted during breast cancer month, it was intended that participating by filling the questionnaire itself would be part of the awareness activities and make women think pink.

Therefore, one limitation of this study is that since the data was collected only during those 30 days, it might in turn have affected the sample size. Moreover, women's uptake and positive attitude towards screening methods might be highly influenced by the male relative information and involvement. This study did not include male population in the survey. Hence future studies should include male population in the total study subjects.

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