

## RESEARCH ARTICLE

# Breast Cancer Knowledge and Screening Behavior among Female School Teachers in Gaza City

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### Abstract

A cross-sectional survey of 370 female teachers working at Governmental schools in Gaza city was conducted. Twenty four schools were selected randomly of all female schools of the city that included primary, preparatory and secondary. In each school all-female teachers aged 35-45 year were invited to fill out a self-administered questionnaire to investigate knowledge and behavior toward breast cancer screening. The survey revealed that more than 75% of women had never undergone clinical breast examination and 60% had never undergone mammography, whereas 62% performed breast self-examination (BSE). Women who performed BSE had significantly higher knowledge about breast cancer screening ( $P=0.001$ ). Women attending CBE and mammography screening also had significantly higher knowledge ( $P=0.001$ ). There were significant associations between the practices and presence of positive breast cancer family history ( $P=0.002$ ) and the level of education of husbands ( $P=0.024$ ). The oldest women demonstrated higher performance rates of screening methods than the youngest ( $P=0.001$ ). Lack of breast screening knowledge was identified among more than one third of the women, and 24.6% of women did not know any screening method. About a half of women harboured misconceptions about breast cancer screening, including the belief that breast cancer not treatable. Women residing in Gaza city ( $P=0.00$ ) and with husbands less educated were more likely to have a high level of misconceptions ( $P=0.01$ ).

**Keywords:** Breast cancer screening - behavior - knowledge - Gaza strip - women teachers

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### Introduction

Breast cancer is an important component of the global cancer problem. It is the most likely reason that a woman will die from cancer (WHO., 2010). Globally, more than one million of breast cancer cases are diagnosed (Jemal et al., 2011). This number is projected to increase to more than two million in 2030 (National Breast Cancer Coalition., 2011). As a consequence of reproductive and nutrition changes, rapid increase of the rates occurs in developing countries (Bray et al., 2004). Despite decrease in mortality rates of breast cancer in developed countries, breast cancer deaths are increasing in the developing countries (Miller, et al. 2010), and it is expected to increase to sixty percent in less than 20 years (Jemal et al., 2011).

In Palestine breast cancer is the most common type of cancer, comprises more than 34.1% of all female cancer. It is often diagnosed among younger women. The age group 20-59 forms the reported cases (MOH., 2013). It has also been reported that in Palestinian women breast cancer presents in advanced stages of the disease. Around 42.2% of reported cases had regional lymph-node involvement stage III and 17.8% had distant metastases stage IV (Hussein et al., 2009).

The delay of presentations can be attributed to many

factors such as lack of community and health professional awareness, high prevalence of alternative health belief model, ineffectual health care system and lack of screening programs (El- Saghire et al., 2010)

Scientific evidences suggest that at least one- third of the annually occurring cancers can be prevented and another one-third if diagnosed early the probability of cure more likely to be (WHO., 2002). Due to the lack of facilities in developing countries, increasing awareness and clinical breast examination are the two conventional screening approaches recommended for developing countries (Anderson et al., 2008).

The World Health Organization has emphasized on education on breast cancer issues and have been identified it as a key elements for early detection program (WHO., 2006). Particularly, in areas where misconceptions about breast cancer create limit for participation in screening program (Harford et al., 2008). Improving screening practices is an effective way to facilitate early diagnosis and reduce the burden of breast cancer. However, the concept of screening is not prevalent in our context. An earlier study conducted to assess barriers for breast cancer screening found limited knowledge with several misconceptions about breast cancer screening among Gaza women (Shaheen et al., 2010). To our knowledge there are

no previous studies have been conducted among female school teachers and the current study is the first to assess knowledge and breast cancer screening behavior among female school teachers in Gaza Strip.

Undoubtedly, teachers are Paradigm that have the capability to enhance healthy behaviors among generations. Specifically, they play a key role in increasing awareness that influence healthy behaviors towards preventive health measures.. Therefore, this survey was carried out in order to assess knowledge and behavior practices among female school teachers in Gaza city. It is hoped that the finding of this study will fill an important information gap related breast cancer screening uptake among Gaza Women to draw lines for intervention policies.

## Materials and Methods

The study was performed in 2013 at Governmental Schools in Gaza City, Palestine. Twenty four schools were selected randomly by stratified sampling methods. Only teachers aged 35-45 years were recruited in the study, as this group forms the maximum reported cases. Teachers with past history of breast cancer and who came from abroad before two years were excluded. A questionnaire was distributed for the all 420 eligible women. Informed consent was obtained verbally from all the participants. The data collection was carried out by four well trained health educators. Fifty women refused to participate or failed to complete the questionnaire and were excluded. Thus, the response rate was 88%. Approval for the study was obtained from public health committee at the school of public health, and from Ministry of higher education.

### Instrument

A validate and reliable self-administered questionnaire was used for data collection. Many questions of the questionnaire adapted from Azaiza et al (2010). Content validity of the questionnaire was assessed by expert committees formed of public health specialist. Reliability was assessed by using test pretest technique. The questionnaire included five sections. 1) demographic data on age, family status, education, economic status, locality, having children, and having a first-degree relative with breast cancer. 2) breast cancer screening knowledge that included ten questions about risk factors, and 11 questions on screening methods. 3) Seven questions on the sources of knowledge.4) Six questions about misconceptions. Responses were measured using nominal scale "True", "False" one point was given for correct answer and Zero point for incorrect answer. In relation to knowledge of risk factors teachers were divided according to their answers into three levels. Limited level was those who answered positively five risk factors and less. Moderate level was those who answered correctly 6-7 risk factors and high level was those who answered correctly 8-10 risk factors. On the other hand, teachers were divided according to their positive answer knowledge of screening methods into four categories. Knowing one method, two methods, three methods and don't know any method. 5) Five questions on breast cancer screening practices.

responses were measured using the nominal scales of "less than recommended", "More than recommended", "Never", "Once before" and "As recommended" The questionnaire is pilot- tested in a sample of 40 women for checking the clarity of the questions and to test applicability of the tools.

### Data analysis

For statistical analysis SPSS (13) was used. Differences in demographic and the study variable were calculated with t-test. Differences between means of variables by attendance at breast examination also were calculated with t-test. The distribution of nominal variables by performance of breast examination was determined by using chi- square.

## Results

The mean age of the participants was 40 years +/-3.20. Three hundred sixteen (85.4 % ) were married. 84.4% of the study populations have children. Regarding education level of the husband two hundred forty eight (74.7%) had a university degree and eighty four (25.3%) had secondary degree and less. 271 (73.4%) had average income and 98 (26.6%) had very low income. 95.4% of the study population were medically-insured and 4.6% don't have health insurance. 78.1% resided in Gaza city and 21.9% resided outside Gaza city. 83.4 % have children. And 23% of teachers have positive breast cancer family history.

The mean knowledge score of the twenty one questions of breast cancer knowledge was 14.2 (SD= 3.07) which meant the correct answers were given to almost a half of the questions.

### Knowledge of risk factors

Teachers were asked about variables that may affect the probability of breast cancer. The findings revealed

**Table 1. Socio-demographic Characteristic**

Parameter	N(%)
Age (years)	
40 years and less	203(54.9)
41 years and more	167(45.1)
Marital status	
Married	54(14.6)
Not married	316(85.4)
Education level of the husband	
Secondary education and less	84(25.3)
University	248( 74.7)
Total income	
500\$ and less	98(26.6)
More than 500\$	271(73.4)
Having children	
Yes	309(83.4)
No	57(15.6)
Health insurance	
Yes	345(95.4)
No	17(4.6)
Locality	
Inside Gaza city	289(78.1)
Outside Gaza city	81(21.9)
Positive family history	
Yes	85(23)
No	285(77)

that 65.9% of the female teachers have knowledge of risk factors, mean: 6.59(SD=1.90). The most identified risk factor was non-breast feeding while aging was the least recognized risk factor. 37% of women were not aware that positive family history of breast cancer was a risk factor. Although, 15.6% of the women don't have children while, one third of them were not aware that no childbearing was a risk factor, and about a half of the women believed that exposure to mammography increases the risk of breast cancer. Only 34.9% of teachers were in high level of knowledge of risk factor. 40% of teachers were in moderate level of knowledge of risk factors and 25.1% of teachers were in limited level of knowledge of risk factors.

#### Knowledge of screening methods

With regards to the screening methods, the most familiar methods were BSE. Only one third of teachers were not aware about BSE, 57.8% were not aware about CBE and fifty percent were not aware of mammography as screening method. Women who are didn't know any screening methods constituted 24.6%. While, women who were knew only one method constituted 24.3%. Women who were knew two methods constituted 17.8% and only 33.2% of teachers are know the three methods.

#### Breast cancer facts, knowledge and misconceptions

The majorities of women indicated that breast cancer as a serious disease(91.6%); also they believed that early detection of breast cancer is necessary (81.4%), and that breast screening is good and helpful in detecting tumor in early stage (90.8%). About 58.9% of the teachers estimated high risk that Palestinians women would have breast cancer. 69.2% believed that breast cancer was a

**Table 2. Knowledge of Risk Factors and Screening Methods.** (Answer= yes) N=370

Risk factors of breast cancer	No.	(%)
Positive family history of breast cancer	232	62.7
Personal history of breast cancer	251	67.8
Exposure to mammography radiation	184	50.3
Aging	190	51.4
Fruits and vegetables	36	17
Smoking	301	81.4
Obesity	200	54.1
Birth pills	231	62.4
No childbearing	227	61.4
Mean 6.5 (SD=1.9)		
Knowledge of screening methods		
Mammography	185	50
Breast self-examination	250	67.6
Clinical breast examination	156	42.2
Mean 1.5 (SD=1.18)		
Breast cancer facts and knowledge,		
Breast cancer ranks first in Gaza	151	40.8
Breast cancer affects only old women	90	24.3
Early detection is necessary	339	91.6
Mammography is painful test	88	23.9
Screening is good in detecting breast cancer at early stages	336	90.8
Breast self-examinations is painful test	55	14.9
Breast cancer is a serious disease	301	81.4
High risk among Palestinian women	218	58.9
Breast cancer is common	256	69.2
Mean 6 (SD=1.5)		

**Table 3. Breast Cancer Screening Practices**

Items	Breast Self-Examination		Clinical Breast Examination		Mammography	
	N	%	N	%	N	%
More than recommended	32	8.6	12	3.2	-	-
As recommended	94	25.4	21	5.7	15	4.1
Less than recommended	85	27.9	30	8.1	37	10
Never	159	43.5	279	75.4	221	59.6
Once before	-	-	28	7.6	97	26.3
Total	370	100	370	100	370	100

common. 23.9% of teachers believed that mammography test was associated with pain and discomfort, Only 24.3% of the women believed that breast cancer was a disease of old women only. The results found that 48.85% of women encountered misconceptions. 52.6% of the women thought that no treatment available for breast cancer and breast examination is needed only when symptoms occur, also 50% thought that mammography causes cancer. 65.2% of them thought that mastectomy is always necessary, and 28.4% thought that breast cancer was a contagious disease. The main source for breast cancer knowledge was mass media (Radio, TV and newspaper) whereas, health workers and nurses were the last sources of information's for the women 19.8% and 19.5% respectively. There were no significant differences in knowledge and misconceptions in relation to age, marital status, health insurance, income, and positive family history. Whereas, women resided inside Gaza city (P=0.00) and those who their husbands were less educated were encountered more misconception about breast cancer (P=0.01).

#### Practices

The results showed that 17% of female teachers have had a CBE, only 5.7% undergone CBE annually. 61.9% percent of teachers performed BSE whereas, only 25.4% of teachers performed BSE as recommended. Concerning mammography attendance about 59.6% of the teachers had never attended mammography screening and only 4.1% had ever attended. Women who performed BSE had significantly higher knowledge on breast cancer screening, compared to those who did not P=0.001. Women attended CBE and mammography screening had significantly higher knowledge of breast screening (P=0.001). There were significant associations between the practices and presence of positive breast cancer family history P= 0.002. There were a significant association between the practices and the level of the education of husbands P= 0.024. There were a strong association between the practice of screening methods and the age group (P = 0.001). The oldest women demonstrated higher performance rates of screening methods than the youngest women. There were no significant associations in relation to marital status, locality, having children and health insurance.

#### Discussion

Finding from this study showed that there is a moderate level of knowledge of breast cancer screening and this knowledge was coupled with several misconceptions

that breast cancer untreatable and a contagious disease. The belief that breast cancer is a contagious disease might lead for isolation from the family and relatives, as a consequence prevent women of seeking diagnosis and treatment (Ali et al., 2006; Banning et al., 2009; karabani et al., 2011). These findings were also previously reported among Palestinian women (Kawar et al., 2010) and could be the main reasons for seeking and the belief that alternative therapy could treat breast cancer. One more negative side, that women are seeking examinations only when the symptoms occur. This belief implies lack knowledge of breast cancer symptoms that the lump or mass in the breast could be a painless. Furthermore, the belief that mastectomy always necessary might get women's sense of fear of detecting the tumor and changing their appearance and create limit for their participation in breast screening (Keshvarz et al., 2011). Interestingly, that less educated husbands were found inhibitors factors for participation in breast screening behavior and have impact on existing of the misconceptions that encountered women about breast cancer. This highlights the influential role of the husbands about the women's knowledge and may raise the importance for increasing outreach directed to the husbands particularly, less educated.

The study showed that women demonstrated higher knowledge of breast cancer screening and risk factors were more likely to perform Breast Self-Examinations, and to attend Clinical Breast Examinations and Mammography screening. Similarly, in Saudi Arabia Dandash et al., (2007) women more likely to perform BSE if they have better knowledge. In another study women more likely attended mammography screening if they have higher knowledge (Sim et al., 2009). In opposite, Parsa et al (2008) found that there were no significant differences on knowledge between women who perform CBE and women who didn't perform CBE among Malaysian women. In support to previous studies (Harbi et al., 2011; Temiz et al., 2008) the most familiar methods was BSE followed by CBE and mammography. Whereas, mammography was the second identified method in our study. These variations could be attributed to the health education activities of local organizations that were directed to the female schools. Besides, the invitation system to mammography is not available in Gaza Strip. Our study revealed low participation rates of breast cancer screening. Similarly, have been reported among Arab women (Bener et al., 2010; Alwan et al., 2012). The percentage of women in the current study performing BSE on regular bases was slightly lower as compared to previous local study (Azaiza et al., 2010) and higher than other population (Parsa et al., 2008; Faronbi et al., 2012). lower proportion of women who undergone CBE were found in this study compared to previous local studies (Azaiza et al., 2010).

Positive family history of breast cancer is associated with women's risk of developing breast cancer and the risk of the greatest magnitude when the first-degree relative is affected (McPherson et al., 2000). Although, 23% of the women had positive family history of breast cancer, about 37% of them were not aware that positive family history of breast cancer was a risk factor. However, in our study positive family history of breast cancer was

an important and effective factor on performing breast screening as it was significantly associated with increasing the performance rates of breast screening. Similarly were reported in previous studies (Hanson et al., 2009; Keshvarz et al., 2011; Kissal et al., 2011).

The literature on the effect of radiation exposure during mammograms indicate that the benefit of mammograms in reducing breast cancer mortality greatly exceed the potential effect of breast cancer risk (Boyle et al., 2003). However, about a half of the women believed that exposure to mammography increases the risk of breast cancer.

In support to previous study (Faronbi et al., 2012; Temiz et al., 2008;) mass media (Radio, TV and newspaper) were the main source for breast cancer knowledge. In this case women might receive inconsistent information about the curability of breast cancer. The results might highlight the importance of increasing awareness and delivering formal messages among communities and media that influencing healthy behavior towards early detections.

The findings cannot be generalized beyond the study sample because the study was undertaken in one governorate and the results may not be generalized to other governorates of Gaza Strip. The study targeted only female teachers which may form sample bias while opinion of other class of the society could reflect other perspectives different from this target group.

The study was included only Governmental schools. However, the results provide baseline information about breast cancer knowledge and practices among Gaza women. The study findings yield several policy implications and could be used as a base for designing educational interventions to increase awareness about breast cancer and the importance of early detection. Education programs should be directed to women and their spouses. It should emphasize on the value of early detection, enhance knowledge screening methods, and provide knowledge about the curability of breast cancer and addressing the misconceptions. Supporting of health education programs in schools and health centers are needed.

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