RESEARCH ARTICLE

Awareness about Breast Cancer and Its Screening among Rural Egyptian Women, Minia District: a Population-Based Study

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Abstract

   Background: Recent global cancer statistics indicate rising global incidence of breast cancer and the increase is occurring at a faster rate in developing countries. Training women how to carry out breast self-examination (BSE) can help them to be alert to any abnormalities in their breasts to speedily seek medical consultation. Health behavior may be influenced by level of awareness about breast cancer. **Methods:** A cross-sectional community- based study aimed to assess the level of knowledge about breast cancer risk factors, early warning signs, screening approaches and related predictors. Also, to determine the extent of practice of breast self- examination (BSE) among rural women, Minia in the period from February to May 2016. A total of 600 women were randomly included in the study. A questionnaire included socio-demographic characteristics and information related to their knowledge about breast cancer. Data analysis was carried out using SPSS version 19. **Results:** Moderate and high knowledge scores were presented by 46.9 %. Nearly 40% of participants had the knowledge that smoking increased the likelihood of cancer breast and almost 30% of them affirmed that being obese or having a positive family history of cancer breast made them vulnerable to cancer breast. It was found that 28.7% and 18.2% of them knew that aging and nulliparity increased the likelihood of breast cancer. Participants with better knowledge score were 4.8 times more likely to practice BSE. **Conclusion:** This study revealed poor knowledge among rural women regarding cancer breast. BSE and clinical breast examination were not well practiced. It is recommended to create awareness programs about breast cancer and regular patterns of BSE.

   Keywords: Breast cancer- knowledge- screening- rural women- Egypt

Introduction

   According to the latest report of The International Agency for Research on Cancer (GLOBOCAN, 2012), breast cancer (BC) is by far the world's most common cancer among women, and the most likely cause that a woman will die from cancer world wide (Ferlay et al., 2013). Breast cancer is by far the most frequent cancer in women (23% of all cancers), ranking second overall when both sexes are considered together. It is the leading cause of cancer mortality in women and constitutes 14% of female cancer deaths (Parkin et al., 2005). Incidence rates are increasing in most countries (Akhtar, 1997).

   It has been predicted that the largest increase in cancer incidence within the next 15 years worldwide is likely to be in the Eastern Mediterranean Region (EMR), where breast cancer is reported as the commonest type of female malignancy in almost all national cancer registries (IARC, 2010, Rastogi et al., 2004).

   Breast cancer rates were increasing in developing countries, including Egypt, and were largely attributed to aging of the population, delay in time of first pregnancy, a decrease in the number of children and in breastfeeding, and a move toward high-calorie Western diets (Amr S et al., 2013).

   Since breast cancer is a progressive disease, small tumors are more likely to be at an early stage and their early detection is more likely to have a better prognosis and more successful treatment (Reynolds, 1999).

   Regular performance of BSE does not mean that the breast cancer is necessarily self detected. BSE increases body awareness, so that there is heightened awareness of changes that may be detected during BSE or at some other time (Haji-Mahmoodi et al., 2002).

   The poor knowledge and wrong beliefs about breast cancer prevention among women are responsible for a negative perception of the curability of a cancer detected early and of the efficacy of the screening tests (Karayort et al., 2009).

Materials and Methods

Subjects and Methods
   This study aimed at assessing the level of knowledge about breast cancer risk factors, early warning signs, and screening approaches and related predictors. To determine the extent of BSE among rural women in Minia, Egypt.

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Study design

A cross-sectional community-based study was conducted during the period from February to May 2016 in Demshire village, Minia district. Minia is one of upper Egypt governorates located 246 Km from Cairo.

Study population

The study participants were chosen by a systematic random sample from the village (the 1st house was chosen randomly then every 3rd house).

The sample size was calculated using Epi Info version 2000. A total of 600 females, aged ≥ 20 years were participated in this study. Non response rate was 0.2%. A written informed consent was taken from each participant.

Data collection

Face-to-face interviewing was used for data collection which was carried out by 10 of 4th year medical students who were previously trained by the investigators to be able to manage the specific challenges and difficulties. A pilot study was performed among 60 females. Their data weren't included in the study.

A questionnaire was constructed based on the study objectives. The questionnaire was tested for reliability using Cronbach's alpha (0.89).

It included questions related to personal data and history of related health events. The questionnaire also investigated the knowledge of females regarding breast cancer and their practice of screening procedures.

Knowledge

Knowledge about the risk of breast cancer was assessed by 15 questionnaire items related to knowledge. These items included personal history of breast cancer, advanced age, nullipara, late age at first pregnancy, early onset of menstruation, having a family history of breast cancer, late onset of menopause, breast feeding, exposure to radiation, hormonal treatment, obesity, alcohol and smoking.

The knowledge of women about the common screening methods (mammography, and breast self examination) was assessed by asking two questions.

Finally the positive answer was assigned one point, whereas a negative answer was given zero. The studied women were divided according to their answers into three levels, poor level (0-2 point), moderate level (3-5 points) and good level (6+ points). Moderate and high levels were coded as the better level and others were coded as the worse (Rastogi et al,2004).

Additional 5 items about the knowledge regarding symptoms of breast cancer: bleeding per nipples, change in breast size, breast mass, presence of axillaries lymph nodes and change of skin appearance were also included.

Experience

Three factors have been identified to have an impact on women's knowledge, attitude and practices related to breast cancer. These variables were termed experience variables and included: family history of having breast cancer, personal history of a lump and knowing a friend or non- relative with breast cancer.

Screening and practice

In addition, the questionnaire included items pertaining to women's practice of the commonest breast cancer screening methods.

Ethical consideration

An approval was taken from the research ethical committee of the authors' institution and the local council of Demshir village to interview the participants. Following the ethical guidelines of epidemiological research, a written informed consent was taken from each participant.

Statistical analysis

The Statistical Program SPSS for windows version 19 had been used in data analysis. Quantitative data were presented as mean and standard deviation, qualitative data were presented as frequency distribution. Logistic regression analysis was used to detect the risk ratio (by OR) of factors affecting breast cancer knowledge and practicing BSE. Statistical significance was set at $p < 0.05$.

Results

Table 1, showed the mean age of the study participants was 32.8±12.2 years, the range was 20 to 70 years. A high percentage (73.5%) were married and about half of them (54 %) were illiterate. The majority of participants were not working (88.7%), and had no health insurance (79.7%).

Table 2, described the individual items constituting the knowledge grid to measure participants' awareness about risk factors related to breast cancer. The most reported risk factor was smoking (39.8%). Regarding identification of symptoms; 41.7% of the study participant identified breast lump as a sign of breast cancer followed by unequal size (40%). Only 13.2% and 14.5% of the study participants knew that BSE and mammography are screening tools of breast cancer.

Table 3, presented the distribution of participants according to their knowledge levels about breast cancer. The better level, which included moderate and high level, was presented by 46.9 % while the worse level represented 53.1%. Regarding source of knowledge, A high percentage (73.7%) of the study participants had no source of Knowledge. Positive family history of breast cancer was found among 3.8% of participants, while only 0.5% personally experienced a breast mass.

Table 4, showed the impact of socio-demographic and experience factors on knowledge. Education (OR=2.3, P=0.001*), having knowledge source (OR=1.8, p=0.002*) were significantly related to better knowledge, while being married was inversely associated (OR=0.6, P=0.01*).

Participants with better knowledge were about 5 times to practice BSE than those with poor knowledge (OR=4.8, P=0.001*), Educated participants were about 3 times to practice BSE than those who were illiterate (OR=2.6, P=0.001*) (Table5).

Discussion

Despite the rising trend of breast cancer, yet the level of

Table 1: Socio- Demographic Characteristics of Study Participants, Rural Minia, February to May 2016

Variables	Number	Percent
Age	20-70	
	32.8±12.2	
Marital state		
Married	441	73.5%
Single	114	19.0%
Divorced	37	6.2%
Widow	8	1.3%
Education:		
Illiterate	324	54.0%
Read and write	57	9.5%
Primary	135	22.5%
Secondary	69	11.5%
University and above	15	2.5%
Occupation:		
Not working	532	88.7%
Working	68	11.3%
Health insurance:		
No	478	79.7%
Health insurance	116	19.3%
Private insurance	6	1.0%
Total	600	100.0%

Table 2. Knowledge About Breast Cancer Risk Factors, Symptoms and Screening Among the Study Participants, Rural Minia, February to May 2016

Variables	Number	Percent
Risk factors		
Aging	172	28.7%
Nullipara	109	18.2%
Old primigravida	128	21.3%
Obesity	182	30.3%
Family history of breast cancer	183	30.5%
Personal history breast lump	187	31.2%
hormones	142	23.7%
Radiation exposure	163	27.2%
Smoking	239	39.8%
Alcohol	219	36.5%
No breast feeding	158	26.3%
Symptoms:		
Bleeding per nipples	230	38.3%
Unequal size	240	40.0%
Skin changes	237	39.5%
Axillary Lymph nodes (LN)	231	38.5%
Breast lump	250	41.7%
Screening tools		
BSE	79	13.2%
Mammography	87	14.5%
Total	600	100.0%

Table 3. Knowledge Score, Experience and Practice of Screening for Breast Cancer Among Study Participants, Rural Minia, February to May 2016

Variables	Number	Percent
Score Level of knowledge		
Poor knowledge	319	53.1%
Moderate knowledge	82	13.7%
Good knowledge	199	33.2%
Source of knowledge:		
None	442	73.7%
Health workers	19	3.2%
Press media	12	2.0%
TV	68	11.3%
Friends	59	9.8%
Past experience:		
From family	23	3.8%
From self experience of breast mass	3	0.5%
From non relative experience of case	3	0.5%
Practice screening		
BSE:		
Never done	571	95.2%
Done but not regular	27	4.5%
Done monthly	2	0.3%
Mammography		
Never done	598	99.7%
Done at least once before	2	0.3%
Total	600	100.0%

rural women awareness regarding the risk factors and the presenting symptoms are still unsatisfactory. The results of this study suggested that participants had rather poor knowledge of breast cancer. The low level of knowledge found in this study was in keeping with reports of other investigators (Odusanya and Tayo, 2001; Uche , 1999; Odusanya, 2001).

Also, this highly correlated with a previous study done on 122 working females at Ain Shams University hospitals in Egypt were only 10.6% of the participants had satisfactory knowledge about the disease (Seif et al., 2000).

In a survey of breast cancer knowledge (Uche, 1999) stated that only 32% of the respondents knew that a breast lump was a warning sign for breast cancer and only 9.8% knew of methods of detecting breast cancer. Our study showed that 41.7% of rural women were aware of a breast lump as a common presentation of breast cancer while only 13.2% and 14.5% of the study participants knew that BSE and mammography are screening tools of breast cancer.

The main source of knowledge about breast cancer and BSE in our study was the television emphasizing the potential effectiveness of the visual media in modifying health behavior and promoting education among the general population. Other studies from developing societies have reported that television and radio are the most popular media able to reach a wide scale of audience (Dandash and Al-Mohaimeed, 2007; Dündar, 2006; Irurhe,

Table 4. Factors Affecting Knowledge Regarding Breast Cancer Among the Studied Participants, Rural Minia, February to May 2016

Variables	Better knowledge	Poor knowledge	X^2 (p)	OR (95% CI)	P of OR
Age					
<40 years old (428)	207(48.4%)	221(51.6%)	1.4	1.06(0.7-1.5)	0.7
≥40 years old (172)	74(43%)	98(57%)	(0.2)	Reference	
Marital state					0.01*
Married (441)	195(44.2%)	246(55.8%)	4.5	0.6(0.4-0.8)	
Unmarried (159)	86(54.1%)	73(45.9%)	(0.03*)	Reference	
Education:					0.001*
Educated (182)	114(62.6%)	68(37.4%)	26.2	2.3(1.6-3.4)	
Illiterate (418)	167(40%)	251(60%)	(0.002*)	Reference	
Occupation					
Not working (532)	243(45.7%)	289(54.3%)	2.5	Reference	0.8
working (68)	38(55.9%)	30(44.1%)	(0.1)	0.95(0.54-1.6)	
Experience					0.1
Yes (29)	18(62.1%)	11(37.9%)	2.8	1.7(0.7-3.8)	
No (571)	263(46.1%)	308(53.9%)	(0.09)	Reference	
Source of knowledge					0.002*
Yes (158)	90(57%)	68(43%)	8.8	1.8 (1.2-2.7)	
No (442)	191(43.2%)	251(56.8%)	(0.003*)	Reference	

*Statistically significant

2011;Kayode et al., 2005).

Younger subjects had a higher level of knowledge about breast cancer compared to older counterparts without significant statistical difference. This was consistence with the study findings of Allam and Abd Elaziz, (2003).

Occupational status also affected the knowledge about breast cancer among the studied females. Employed

Table 5. Factors Affecting Practice of BSE Among the Studied Participants, Rural Minia, February to May 2016

Variables	Practice of BSE		X^2 (p-value)	OR (95% CI)	P of OR
	Yes N=29	No N=571			
Age					
<40 years old (428)	24(5.6%)	404(94.4%)	1.9(0.1)	0.86(0.2-2.5)	0.8
≥40 years old (172)	5(2.9%)	167(97.1%)		Reference	
Marital state					
Married (441)	25(5.7%)	416(94.3%)	2.5(0.1)¤¤	2.4(0.7-7.6)	0.1
Unmarried (159)	4(2.5%)	155(97.5%)		Reference	
Education:					
Educated (182)	17(9.3%)	165(90.7%)	11.5(0.001*)	2.6(1.2-5.7)	0.01*
Illiterate (418)	12(2.9%)	406(97.1%)		Reference	
Occupation:					
Not working (532)	26(4.6%)	506(95.1%)	0.03(0.8) ¤¤	Reference	0.6
working (68)	3(4.4%)	65(95.6%)		0.74(0.2-2.7)	
Experience					
Yes (29)	3(10.3%)	26(89.7%)	2.01(0.1)	1.7(0.4-6.4)	0.7
No (571)	26(4.6%)	545(95.4%)		Reference	
Source of knowledge					
Yes (158)	10(6.3%)	148(93.7%)	1.04	0.89(0.3-2.09)	0.8
No (442)	19(4.3%)	423(95.7%)	-0.3	Reference	
Knowledge score					
Poor knowledge (319)	5(1.6%)	314(98.4%)	15.7	Reference	
Better knowledge (281)	24(8.5%)	257(91.5%)	(0.001*)	4.8(1.7-13.04)	0.002*

*, Statistically significant; ¤¤, Fisher exact

participants were more knowledgeable about the disease. This finding is in agreement with a Saudi study who concluded that the knowledge level among Saudi females were low in relation to occupational status (Ikechukwu et al., 2015).

The grade of knowledge about breast cancer was higher among highly educated subjects compared to less educated subjects with significant difference statistically. This highly agreed with a study done in Nigeria revealed that education was a strong determinant of knowledge of breast cancer among the women (Amin et al., 2009).

A percentage of 30.5% of our study subjects reported that it was a hereditary disease. This was nearly equal to the rate reported by school teachers in a Nigerian study where only 30% reported that positive family history was a risk factor (Odusanya, 2001).

Slightly lower than a quarter of participants (23.7%) were aware that hormonal replacement therapy represented a risk related to breast cancer. The awareness level in this study was much lower than that reported by Allam and Abd Elaziz., (2003).

Contrarily to what found by Al-Dubai et al., (2012) that most of the respondents (91.0%) were aware about breast self examination (BSE). This high awareness rate was comparatively higher to that found in this study. This could be attributed to socioeconomic characteristics differences as more than half of them have positive family history, about two third of them were university graduates and with different marital status. Increasing level of awareness may be also as a resultant of other means of information especially the media, and friends.

The results of the present study also revealed that, above ninety five percent of total participants never perform BSE. This result was supported by both Abd El Aziz et al., (2009) and Dardas and TahaInt, (2013) who studied the impact of Health Education Intervention Program about Breast Cancer among women in a Semiurban Area in Alexandria, Egypt and concluded that the majority of the students did not practice BSE. These findings highlighted the overall problem of not performing regular BSE amongst women all over the World.

Those women who witnessed family incidents of cancer breast are more likely to practice screening approaches and to acquire better knowledge regarding risk factors and early alarm signals of breast cancer as a result of what family members went through.

There are some limitations in this study. This was a cross sectional study, it does not exclude other confounding effects that may influence experience of symptoms. Another limitation was, as a self reporting questionnaire was used, in view of substantial number of women studied does not have formal education, in order to include these illiterate women, interviews were used instead. In collecting data, women were asked to provide some retrospective information. Hence recall bias was unavoidable, especially for some elderly women.

Conclusion and recommendations

This study showed that there was inadequate breast cancer- related-knowledge as risk factors, early warning signals and there was insufficient knowledge and practice of the screening approaches (BSE) among rural Egyptian women. So, the following are recommended: Establishing breast cancer awareness programs to empower women to fight breast cancer on their own.

Maximize benefit of internet and social networks as well as relevant support groups especially by younger highly educated women to improve their level of knowledge about the disease and preventive measures.

Conflicts of interest

The authors declared no competing conflicts of interest.

Acknowledgements

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