

# Low Awareness about Breast Self-examination and Risk Factors of Breast Cancer in Benghazi, Libya

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## Abstract

**Background:** Breast cancer is the most common cancer in women in the Eastern Mediterranean region and the leading cause of cancer mortality worldwide. **Objectives:** The study aimed to ascertain the level of awareness about the breast self-examination (BSE) and early detection of breast cancer and risks of breast cancer in the women of Benghazi, the second capital city of Libya. **Subjects and Methods:** A community-based survey was carried out in Benghazi to assess the knowledge, attitude, and practice of women at Benghazi about BSE and risk and protective factors of breast cancer. Cluster sampling technique was used. 30 clusters were selected during the year 2013. **Results:** Three thousand women were targeted; 2601 women were interviewed. Their mean age was  $36.4 \pm 10.9$  years; more than half of them were married. The respondents' knowledge about BSE was poor with less than half of them (48.1%) having ever heard about BSE. Less than one-fifth of them (16.9%) knew what is BSE and less than one-quarter (25.7%) had satisfactory knowledge about the recommended frequency of BSE. About 39.0% of the respondents knew how to perform BSE, less than one-quarter of them (22.5%) knew when to start it. However, about three quarters (74.4%) of women considered BSE practice very important based on information from television programs as their source of knowledge (23.8). Less than half (43%) thought that high-fat diet and 42% stated that that physical inactivity are recognized risk factors for developing breast cancer. **Conclusions:** There is a poor knowledge about BSE and about risk and protective factors of breast cancer even among educated women in Benghazi. Primary prevention and early detection awareness should be the first step for prevention of breast cancer in Benghazi, Libya.

**Keywords:** Breast, breast self-examination, knowledge, attitude, and practice analysis, primary prevention, survey, women health

## INTRODUCTION

Breast cancer is the top cancer in women both in the developed and the developing countries. The incidence of breast cancer is increasing in the developing world due to increasing life expectancy, increasing urbanization, and adoption of western lifestyles.<sup>[1,2]</sup> Breast cancer ranks as the second cause of cancer death in the Eastern Mediterranean Region. Awareness and early detection of the disease is vital.<sup>[3]</sup> In 2004, in Libya, breast cancer was the most common malignancy in women as recorded by Benghazi Cancer Registry. It represented 23% of all cancers in women.<sup>[4]</sup> Therefore, early detection in order to improve breast cancer outcome and survival remains the cornerstone of breast cancer control.

Breast self-examination (BSE) is an established preventive health behavior, and it is commonly recommended strategy for breast cancer screening.<sup>[5]</sup> The American Association of Cancer recommended that BSE for young women should start at the age of 20 and it should be done every month after

menstruation.<sup>[5,6]</sup> However, older women are recommended to have more intensive assessments such as clinical breast examination (CBE) by a health professional, mammogram, or screening magnetic resonance imaging according to age and clinical risk clinical examination.<sup>[5,6]</sup>

The goal of periodic BSE and CBE is to detect palpable tumors. An additional role of BSE is to increase awareness of normal breast composition so that there is heightened awareness of changes that may be detected during BSE or at some other time. The value of heightened awareness is based on the value of earlier treatment of both nonpalpable and palpable breast cancers.<sup>[7,8]</sup> There are no data from Libya on women's awareness of breast cancer in general and BSE in

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particular. Therefore, this study aims to identify the gaps in the knowledge, attitude, and practices of Libyan females with view to guide health education and care.

## SUBJECTS AND METHODS

### Design and settings

This is a community-based cross-sectional interview survey of women' knowledge, attitude, and practices about BSE in Benghazi carried out during the 5-month period of February–June 2013. A cluster sampling technique was used to choose 30 clusters. 3000 women were randomly selected to represent the women in the city and number proportionate to the size each cluster. The study criteria were nationality; age range and the numbers being proportionate to the size of each cluster. A total of 3000 women aged 18 years or older were invited; 2601 women were interviewed. The study was approved by the local ethics committee, and informed written consent was obtained before serving the survey.

### Survey instrument

Precoded interview questionnaires were used to collect data. The questionnaire included four domains. The first included sociodemographic data on age, education, marital status, and occupation. The second domain covered questions relating to knowledge of breast cancer risk and protective factors. The third domain included the seven items that assessed participants' knowledge of BSE (including questions such as: does BSE practice reduce the incidence of breast cancer, ever heard about BSE, age to start, frequency, method, the timing, position, frequency, and details of performance of BSE). The sources of respondents' knowledge about BSE were also ascertained. The attitude and practices of BSE among women in Benghazi were assessed in the fourth domain.

### Data analysis

Data are presented as actual numbers, proportions, percentages or means, and standard deviations for summary descriptive statistics. Relations were explored using Chi square test and  $P < 0.05$  was taken to indicate significance.

## RESULTS

### Demographics of study population

Of the total 3000 women, 2601 were interviewed (response rate 86.7%). The mean age was  $36.4 \pm 10.8$  years, nearly one-third 846 (32.5%) of participants aged 31–40 years. 44.8% of women who were having University and higher education and <10th of the respondents were illiterate 7.7%. One thousand and six (38.6%) of women were teachers, 796 (30.6%) were homemakers, 301 (11.6%) were students, and 124 (4.8%) were professionals. The study reported that slightly more than half, 1349 (51.9%) of respondents were married, 1028 (39.5%) were single, and less than tenth 224 (8.6%) were divorced or widow [Table 1].

### Knowledge about breast self-examination

1080 (41.5%) of participants had good knowledge about BSE; 803 (31%) had fair knowledge; and 718 (27.5%) of them had

**Table 1: Sociodemographic characteristics of the respondents**

	<i>n</i> (%)
Age	
≤20	288 (10.7)
21-30	621 (23.9)
31-40	846 (32.5)
41-50	627 (24.1)
≥51	229 (8.8)
Mean age (years)	36.4±10.8
Formal educational level	
Illiterate	199 (7.7)
Elementary level	362 (13.9)
Secondary	210 (8.1)
University and higher	1165 (44.8)
Diploma (intermediate and high)	665 (25.6)
Occupation	
Professional	124 (4.8)
Teacher	1006 (38.6)
Students	301 (11.6)
Technician	64 (2.5)
Clark jobs	310 (11.9)
Homemaker	796 (30.6)
Marital status	
Married	1349 (51.9)
Single	1028 (39.5)
Divorce or widow	224 (8.6)
All	2601 (100.0)

poor knowledge about BSE. Most of the women knew that practicing of BSE can decrease the incidence of breast cancer (2382 [91.6%]). Less than half of women (1251 [48.1%]) heard about BSE, slightly more than half of females (1387 [53.3%]) knew the correct position for BSE, (1014 [39.0%]) knew how to perform BSE, and [720 (27.7%)] knew the correct age to start BSE practice. Less than one quarter them (586; 22.5%) knew when to start practicing BSE. One-quarter of participants [668 (25.7%)] had correct knowledge about the frequency of BSE, but less than one-fifth (440 [16.9%]) knew BSE.

### Perception of the breast cancer risk factors

Regarding risk factors, exposure to medical radiation was stated as a risk factor by nearly two-thirds of the respondents (61%), use of hormonal replacement therapy was mentioned by over half of the women (58.6%), and family history of breast cancer was identified by a similar proportion (58.5%). Artificial feeding was blamed by 57.8%, cigarette smoking by 57.3%, and living and living near high voltage magnetic field by 51.8%. However, less than half (46.8%, 45.7%, and 45.3%) of the respondents implicated use of contraceptive hormone, high fatty meals, and lack of exercise, respectively, as risk factors of breast cancer. Whereas less than one-fifth (17.1%) of respondents associated early menarche with increased risk of developing breast cancer. On the other hand, protective factors from breast cancer recognized

by respondents included breastfeeding by more than 4 in five (88.5%), regular vegetable intake, and regular exercise by over two-thirds (68.2% and 65.2%, respectively). Over half of respondents (58.8%) suggested consumption of low-fat food and over one-third (37.1%) mentioned vegetable oils as protective. A minority (10.2%) of respondents considered late marriage as a protective factor.

### Knowledge of breast cancer symptoms

The following features of breast cancer were recognized by the corresponding percentages of the respondents: a lump in the axilla (75.6%), differences in the breast size (60.1%), perimenstrual breast pain (53.9%), breast skin changes (49.6%), bloody nipple discharge (43.9%), and any nipple discharge (42.4%). A total of 1172 (43.4%) of respondents could not recall a definite source of knowledge. However, 23.9% reported their source of knowledge as television stations, 19.9% thought it came from multiple sources, 6.3% got these information from family and friends, and only a minority of 3.8% and 2.8% thought that their source of knowledge were lectures and internet, respectively.

### Attitudes to breast self-examination and breast cancer

About 74.9% and 22.4% of the respondents viewed them as very important or important, respectively. An extreme minority had a neutral view point (1.2%) or felt it was not important at all (1.5%). Of the respondents who had university or postgraduate education, 47.6% and 47.2% viewed the BSE as very important and important, respectively. There were significant differences between women attitude and their education ( $\chi^2_{12} = 24.57$  and  $P = 0.01$ ). Highly significant association between women attitude and occupation where among those women who believed the BSE as very important and important, 39.7% were teachers and 29.1% were homemakers ( $\chi^2_{52} = 32.52$  and  $P = 0.005$ ). There was a significant association between women's attitude toward BSE and their age where ( $\chi^2_6 = 16.77$  and  $P = 0.05$ ); women aged 20–50 years, 75.7% believed that BSE practice is very important [Table 2]. There was no significant relationship in women's attitude toward BSE and marital status where  $\chi^2_6 = 6.95$  and  $P = 0.32$ ; married women, i.e., 54.1% believe that BSE is not important. Among single women, 45.9% believe that BSE is not important and 38.9% of them believed that BSE is very important.

### Practice of breast self-examination

Only 12.1% of women regularly perform BSE. There was significant relationship between practice of BSE and the participants' education ( $\chi^2_8 = 44.13$ ,  $P = 0.0001$ ); among those women who regularly perform BSE, 44.1% had university or higher education, 28.6% had college diploma, 16.5% had elementary education, and 4% were illiterate [Table 3].

There was significant relationship between practice of BSE and women's occupation ( $\chi^2_8 = 37.0$ ,  $P = 0.0001$ ). For instance, of the women who were regularly performing BSE, 40.5% were teachers and 28.9% were homemakers. Furthermore, there was a significant relation between BSE practices and

past history and family history of breast cancer where odd ratio = 3.75 (95% confidence interval = 1.86–7.59;  $P = 0.001$ ). Only 1.4% of women in general and only 5% of those who had history of breast cancer were practicing BSE [Table 3]. There was no significant differences between marital status and BSE practices: 56.7% of the married women, 37.0% of single women, and 6.2% of widows and divorced women were practicing BSE regularly ( $\chi^2_4 = 5.34$ ;  $P = 0.25$ ).

## DISCUSSION

The current survey represents an important data about knowledge, attitude, practices of BSE, risk and protective factors of breast cancer among Libyan women at Benghazi. Early detection of breast cancer has a great impact on the mortality and survival rate of patients suffering from breast cancer.<sup>[9]</sup>

The present survey reported that less than half of women in Benghazi had a good knowledge score about BSE and over half of respondents females had fair or poor knowledge score, a similar result was reported by others in Iraq.<sup>[10]</sup> Less than half of Benghazi women heard about BSE. This level is better than that reported in Qatar and Bahrain.<sup>[11,12]</sup> While a higher level of knowledge were reported in Nigeria (94%), Saudi Arabia (79%), and Kuwait (67.5%).<sup>[13-16]</sup>

Knowledge of Benghazi women of the timing, frequency, and method of BSE was much lower than that recorded in Iraq.<sup>[10]</sup> Nigerian and Saudi women knew the correct time of BSE performance and Jeddah.<sup>[15,16]</sup> About 30.8% of respondents knew the BSE in Iran.<sup>[17]</sup> However, best responses came from females nurses in UAE,<sup>[18]</sup> but these may not be a fair comparators because of their health background. Recognized risk factors were identified to variable degrees. Similar but not identical degree of variation was seen in the Iraqi study.<sup>[10]</sup> About 88.5% of women in the resent study considered breastfeeding as the most important protective factors from breast cancer but regular vegetable intake, regular physical exercise, low-fat food, and vegetable oils play some role. About 17% of Iraqi women were aware that early oophorectomy could have a protective role<sup>[10]</sup> but 72.2% were able to identify other preventive measures that included alcohol abstinence, physical activity, healthy diet, maintaining a healthy body weight, and avoiding hormonal therapy.

The low proportions of women practicing BSE regularly in the present study are as poor to those reported from Yemen and Saudi Arabia,<sup>[19,20]</sup> and even better than those reported from Iran, Kuwait, and Egypt.<sup>[17,21,22]</sup> The current study and others support the notion that BSE rates are much lower in Eastern Mediterranean region and Arab countries than in many countries in Africa and Asia such as Nigeria with rates of 80% practicing BSE months and Turkey where 52% of Turkish midwives practiced BSE<sup>[23]</sup> and 43.9% of Turkish female teachers.<sup>[24]</sup> In Turkey, it was suggested that education and busy social and professional life affects the rates in different directions.<sup>[24]</sup> It is possible that similar effects worked in our own series and others. Interestingly, BSE was

**Table 2: Women's sociodemographic characteristics and attitude toward breast self-examination practice**

Characteristics	Attitude: Do you believe BSE important?				Total, n (%)	Test of significance
	Very important, n (%)	Important, n (%)	Neutral, n (%)	Not important, n (%)		
Participants' education						
Illiterate	45 (2.4)	12 (2.2)	3 (10.3)	2 (5.4)	62 (2.5)	$\chi^2_{12}=24.57$ ; $P=0.017$
Elementary	254 (13.8)	98 (17.8)	6 (20.7)	4 (10.8)	362 (14.7)	
Secondary	154 (8.3)	48 (8.7)	5 (17.3)	2 (5.4)	209 (8.5)	
Diploma	513 (27.8)	133 (24.1)	9 (31.0)	9 (24.3)	664 (27.0)	
University and higher	879 (47.6)	260 (47.2)	6 (20.7)	20 (54.1)	1165 (47.3)	
All	1845 (74.9)	551 (22.4)	29 (1.2)	37 (1.5)	22462 (100)	
Participants' occupation						
Professionals	91 (4.7)	29 (4.9)	2 (5.6)	2 (5.3)	124 (4.8)	$\chi^2_{15}=32.52$ ; $P=0.005$
Teachers	769 (39.7)	214 (36.3)	5 (13.9)	17 (44.7)	1005 (38.7)	
Technicians	51 (2.6)	12 (2.0)	1 (2.8)	0 ()	64 (2.5)	
Official workers	245 (12.7)	58 (9.8)	2 (5.6)	5 (13.2)	310 (11.9)	
Students	216 (11.2)	79 (13.4)	3 (8.3)	3 (7.9)	301 (11.6)	
Homemaker	563 (29.1)	198 (33.6)	23 (63.9)	11 (28.9)	795 (30.6)	
All	1935 (74.5)	590 (22.7)	36 (1.3)	38 (1.5)	2599 (100)	
Participants' age (years)						
≤0	132 (7.0)	58 (10.1)	3 (9.7)	4 (10.5)	197 (7.8)	$\chi^2_6=16.77$ ; $P=0.05$
21-50	1082 (57.7)	345 (60.0)	15 (48.4)	24 (63.2)	1466 (58.2)	
>50	660 (35.2)	172 (28.8)	13 (42.0)	855 (34.0)	627 (24.9)	
All	1874 (74.4)	575 (22.8)	31 (1.3)	38 (1.5)	2518 (100)	
Marital status						
Married	1029 (54.1)	286 (49.1)	14 (43.8)	18 (48.6)	1347 (52.8)	$\chi^2_6=6.95$ ; $P=0.32$
Single	739 (38.9)	257 (44.2)	15 (46.9)	17 (45.9)	1028 (40.3)	
Widow/divorced	134 (7.0)	39 (6.7)	3 (9.4)	2 (5.4)	178 (7.0)	
All	1902 (74.5)	582 (22.8)	32 (1.3)	37 (1.4)	2553 (100)	

BSE: Breast self-examination

**Table 3: Participants' sociodemographic characteristics and breast self-examination practices**

BSE practice and personal characteristics	Do you perform BSE regularly?				Test of significance
	Yes, n (%)	No, n (%)	I don't know, n (%)	Total, n (%)	
Formal education					
Illiterate	12 (4)	32 (1.7)	18 (6.3)	62 (2.5)	$\chi^2_8=44.13$ and $P=0.0001$
Elementary	49 (16.5)	255 (13.7)	56 (19.6)	360 (14.7)	
Secondary	17 (5.7)	160 (8.6)	31 (10.9)	208 (8.5)	
Diploma	85 (28.6)	502 (26.7)	76 (26.7)	663 (27.1)	
University and higher	134 (45.1)	918 (49.2)	104 (36.5)	1156 (47.2)	
Occupation					
Professionals	20 (6.4)	90 (4.7)	12 (3.8)	122 (4.7)	$\chi^2_{10}=37.0$ ; $P=0.001$
Teachers	126 (40.5)	782 (41.3)	92 (28.9)	1000 (38.7)	
Technicians	9 (2.9)	47 (2.5)	8 (2.5)	64 (2.5)	
Official workers	40 (12.9)	235 (12.4)	33 (10.4)	308 (11.8)	
Students	26 (8.4)	240 (12.6)	34 (10.7)	300 (11.6)	
Homemaker	90 (28.9)	501 (26.5)	139 (43.7)	790 (30.6)	
Previous history of breast cancer					
Positive history	12 (3.9)	24 (1.1)	3 (0.9)	39 (1.4)	OR=3.75 (CI=1.8-67.59); $P=0.001$
Family history of breast cancer					
Positive history	38 (12.2)	206 (9.1)	26 (8.2)	270 (9.4)	OR=1.4 (CI=0.97-2.02); $P=0.05$
Female's age/year					
≤20	10 (3.3)	161 (8.5)	24 (8.0)	195 (7.8)	$\chi^2_6=20.34$ and $P=0.002$
21-50	174 (57.2)	1230 (59.5)	155 (51.8)	1459 (58.3)	
>50	120 (39.5)	609 (37.1)	120 (40.2)	849 (34.0)	

Contd....



Table 3: Contd...

BSE practice and personal characteristics	Do you perform BSE regularly?				Test of significance
	Yes, n (%)	No, n (%)	I don't know, n (%)	Total, n (%)	
Marital status					
Married	173 (56.7)	1010 (52.4)	157 (51.3)	1340 (52.8)	$\chi^2_4=5.34$ and $P=0.25$
Single	113 (37.0)	788 (40.9)	120 (39.2)	1021 (40.2)	
Widow and divorced	19 (6.2)	129 (6.7)	29 (9.5)	177 (7.0)	
All	305 (12.0)	1925 (75.9)	306 (12.1)	2538 (100) (73 missing)	

BSE: Breast self-examination, CI: Confidence interval, OR: Odds ratio

positively associated with a higher educational level in Saudi Arabia and Turkey, employment, family history of breast cancer, and a history of benign breast diseases.<sup>[20,24]</sup>

The present survey revealed that the largest proportion of women could not identify a definite source of knowledge but nearly quarter of them thought it came from TV programs. This is at variance with other studies where most of the information could be traced back to health educator.<sup>[16]</sup> This provides health care professionals and health organisations an opportunity to address the present deficits via national and local TV stations. The discordance between knowledge and practice needs efforts directed at change management rather than simply informing the public. Positive relation between BSE practices and past history and family history of breast cancer was found in the present study similar to previous reports.<sup>[9,20]</sup>

## CONCLUSIONS

The survey indicated that women in Benghazi have positive attitude toward BSE. However, as their knowledge is poor, they will not be capable to perform effective BSE despite their reported enthusiasm. Moreover, they have poor knowledge about risk and protective factors of breast cancer. This was evident even among educated women. A dual strategy is recommended of combining primary prevention to reduce the risk load in society and early detection to improve the outcome of those detected to have the disease. There is a continuing need for more breast cancer education programs to all women to attract them toward primary prevention and early detection programs. Further research is needed to identify size of the problem nationwide, responses to future corrective plans, and barriers and promoters of screening in general and BSE knowledge and practices in particular.

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Nil.

## Conflicts of interest

There are no conflicts of interest.

## Compliance with ethical principles

The study was conducted in accordance of the principles of the Declaration of Helsinki. The protocol was approved by Research ethics committee of the University of Benghazi.

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