

Raising the Breast Health Awareness amongst Women in an Urban Slum Area in Alexandria, Egypt

Ibrahim F. Kharboush^{a,b} Hanaa M. Ismail^{a,b} Alaa A. Kandil^{a,c} Heba M. Mamdouh^{a,b}
Yasmine Y. Muhammad^{a,b} Omnia G. El Sharkawy^a Hassan N. Sallam^{a,d}

^aResearch Department, Alexandria Regional Center for Women's Health and Development (ARC),

^bHigh Institute of Public Health,

^cOncology Department, Faculty of Medicine,

^dDepartment of Obstetrics and Gynecology, University of Alexandria, Egypt

Keywords

Breast cancer · Breast self-examination ·
Breast awareness · Knowledge · Egypt

Summary

Background: Breast Cancer (BC) is the most frequently occurring cancer among Egyptian women. This study aimed to determine the effectiveness of a health education program on raising the knowledge related to BC, its risk factors, and some related preventive practices among women living in an urban slum area in Alexandria. **Patients and Methods:** A pre-/post-test interventional study was conducted during 2009–2010 on a random sample of women aged 30–65 years (n = 486) living in a slum area in Alexandria, Egypt. 20 health education sessions were carried out to educate the women on BC risk factors and some preventive practices. Previously trained nurses educated the sampled women on breast self-examination (BSE). The women's knowledge and opinion about BC and their practice of BSE were evaluated before and 3 months after the intervention. **Results:** The findings indicated a significant increase in the mean knowledge score regarding BC and the mean opinion score regarding some BC risk factors. A significant increase in the practice of BSE was observed post intervention. **Conclusion:** This study confirms the effectiveness of intervention programs in improving the knowledge about BC risk factors and practice of BSE even in a group of women with a low literacy rate living in a slum area.

Schlüsselwörter

Brustkrebs · Brustselbstuntersuchung ·
Brust-Bewusstsein · Wissen · Ägypten

Zusammenfassung

Hintergrund: Brustkrebs (BC) ist die am häufigsten auftretende Krebsart bei Frauen in Ägypten. Ziel dieser Studie war die Bestimmung der Wirksamkeit eines Gesundheitserziehungsprogramms zur Erhöhung der Kenntnisse im Zusammenhang mit BC, dessen Risikofaktoren und einigen BC-bezogenen präventiven Verhaltensweisen bei Frauen, die in einem städtischen Slum-Gebiet in Alexandria leben. **Patienten und Methoden:** Eine Prä-/post-Test-Interventionsstudie wurde während der Jahre 2009–2010 bei einer Stichprobe von 30- bis 65-jährigen Frauen (n = 486), die in einem Armenviertel in Alexandria, Ägypten leben, durchgeführt. 20 Sitzungen zur Gesundheitserziehung wurden durchgeführt, um die Frauen über BC-Risikofaktoren und einige vorbeugende Verhaltensweisen aufzuklären. Zuvor ausgebildete Krankenschwestern trainierten die Frauen der Stichprobe in Brustselbstuntersuchung (BSE). Das Wissen und die Meinung der Frauen über BC sowie ihre Praxis der BSE wurden vor der Intervention und 3 Monate danach bewertet. **Ergebnisse:** Die Ergebnisse zeigen eine signifikante Zunahme in den Kenntnissen in Bezug auf BC und eine höhere Meinung in Bezug auf einige BC-Risikofaktoren. Nach der Intervention wurde eine deutliche Steigerung in der Praxis der BSE beobachtet. **Schlussfolgerung:** Diese Studie bestätigt die Wirksamkeit von Interventionsprogrammen zur Verbesserung der Kenntnisse über Risikofaktoren, BC und die Praxis der BSE auch in einer Gruppe von Frauen mit niedrigem Alphabetisierungsgrad, die in einer benachteiligten Gemeinde leben.

Introduction

Worldwide, breast cancer (BC) represents 10% of all cancers diagnosed annually and constituted 22% of all new cancers in women in 2000, making it by far the most frequently occurring cancer in women. It will also become an important challenge to health services in developing countries in the coming decades [1].

The incidence, mortality, and survival rates for BC vary across the world's regions because of underlying differences in known risk factors, access to effective treatment, and the availability of organized screening programs [2]. Fatality rates tend to be higher in low-resource countries [1].

In Egypt, cancer registries reveal that BC is the most frequently occurring cancer among women, representing 18.9% of the total cancer cases (35.1% in women and 2.2% in men), with an age-adjusted rate of 49.6 per 100,000 persons [3]. BC among Egyptian patients has a younger age distribution, with the majority of cases occurring at 30–60 years of age. The median age at diagnosis is 49 years, 1 decade younger than the corresponding age in Europe and North America [4].

The etiology of BC is multi-factorial and cannot be directly linked to any single factor. The epidemiological literature supports a highly complex interplay between different exposures and host characteristics and between exogenous and endogenous hormones and an individual's genetic makeup [5]. A woman's age is the strongest risk factor for BC, and older women have a 10 times increased risk compared with younger women. Reproductive risk factors associated with the risk of BC include: menarche before the age of 11 years, menopause after the age of 54 years, and an age greater than 40 years at first full-term pregnancy [6]. The higher the number of full-term pregnancies, the greater the protection. Women who breastfeed have a reduced risk compared with women who do not breastfeed [7]. Current knowledge suggests that oral contraceptive use is one of the weakest risk factors for BC [5].

Prevention or identification of BC at an early stage is of paramount importance in saving and improving the quality of life. Breast health awareness appears to be a pragmatic method for this. Creating breast health awareness appears to be an important prerequisite for early detection of BC in low-income countries [8]. Although breast awareness has long been advocated as a health promotion intervention in many parts of the world, evidence suggests that women in general are still not breast aware.

Methods for early detection must be considered the best second choice for reducing the mortality, amongst which breast self-examination (BSE), clinical breast examination (CBE) by the treating physician, as well as ultrasound and mammography, are the secondary preventive methods used for screening in the early detection of BC [9]. According to the American Cancer Society (ACS), BSE is an option for women starting from the early 20's [10].

The combination of BSE and CBE seems to be an important available alternative in slum areas [11]. In areas where access to CBE and mammograms is difficult, BSE still detects BC early enough for treatment options.

BC is usually diagnosed at an advanced stage in Egypt, and studies revealed that population screening is rarely practiced in Egypt [9, 12–14]. Women living in slum areas suffer from the unavailability of services and poor health [15].

Given the importance of the BC problem in Egypt in terms of magnitude and severity, and that only few studies examined the awareness of BC among Egyptian women [16], this study was performed to evaluate the effect of a breast health awareness intervention program on the knowledge of a sample of women living in an urban slum area in Alexandria, Egypt.

Patients and Methods

Study Population

A random sample of 486 women living in the chosen area, in the age group of 30–65 years, was selected to participate in the study. Selected women who accepted to participate were invited to attend the intervention.

Design and Sampling Technique

A pre-test and post-test interventional study was conducted to evaluate the effects of BC and the BSE education program on a sample of women living in an urban slum area in Alexandria, Egypt. There is no accurate data about the population in these slums [17]. Based on the estimates available, a systematic random sampling of the houses (every 3rd house) in the area was used.

Before attending the health education sessions, women were interviewed to complete a pre-designed questionnaire. The questionnaire was designed after reviewing by 3 Egyptian experts [18, 19]. The questionnaire was composed of 2 parts: The first part is used to investigate the socio-demographic data, some BC risk factors, and the family history among first- and second-degree relatives. The second part included questions about the knowledge of BC and the practice of BSE. The questionnaire was reused after 3 months from the end of the intervention (post-test).

Intervention

In a 2-day program, 5 affiliated nurses were trained by doctors on the correct time of the month to perform BSE, the steps of BSE, the proper patterns for palpating breast tissue, and the 3 early-detection guidelines as cited by the ACS [20].

The intervention was conducted in non-governmental organization (NGO) premises in the slum area. Over a period of 6 months, each week about 25 women were invited to attend the health education sessions. The sessions included interactive lectures and group discussions carried out by an oncologist, followed by training on BSE demonstrated by the trained nurses. The nurses used breast models to explain the BSE technique.

Data Analysis

Statistical analysis was performed using the SPSS program version 14. The knowledge score questions were measured by 0 and 1 categories, where 1 referred to the correct answer. A total knowledge score of 7 was calculated. The women's knowledge on BC risk factors was evaluated by calculating the proportion of women who recognized the correct answers

on some BC risk factors before and after the intervention. In addition, the women were asked if they agreed or disagreed with some statements, to evaluate their opinion about some risk factors of BC and the preventive practices. The opinion score questions were measured on a 0–3 scale, where 3 was the most satisfactory answer, giving a total score of 18.

The McNemar test was used to compare the answers in the pre- and post-tests, while the paired t-test was used for comparison of the total scores. Logistic regression analysis was performed to detect the factors associated with performing BSE and the change in opinion scores after the intervention.

Results

The majority of the sampled women were currently married (84.6%), with a mean age (\pm standard deviation (SD)) of 43.2 years (\pm 9.01). About 3/4 of the study participants were illiterate and 96.1% of them were housewives (table 1).

Some Reproductive Characteristics and Influencing Factors of BC

The age of menarche for 39.1% of the women was < 13 years. The mean age of marriage (\pm SD) of the ever-married participants was 19.3 (\pm 3.9) years. Among the ever-married women, 97.5% had a history of at least 1 pregnancy, with 44.7% of them reporting to have 3 or 4 children (the mean number (\pm SD) of children was 4.1 (\pm 2.1)).

About 90% of the sampled women reported that they breastfed all their children. The majority of the women reported on ever use of contraception (90.9%), with hormonal contraception ever used by 38.1% of them. Only 8.6% of the women previously attended health education sessions. About 8.2% of the women had a family history of BC, with a minor percentage reporting to have had any treatment of breast symptoms (table 2).

BC Knowledge and Women's Opinion pre/post Intervention

Prior to the intervention, only 18.3% of the study participants knew that all women are at risk of BC. The proportion of women who recognized a positive family history and menopause as risk factors of BC were 66% and 52%, respectively. The total knowledge score of the participants (\pm SD) was 2.77 (\pm 1.2). Post intervention, the mean total knowledge score increased significantly (2.77 \pm 1.24 pre intervention vs. 3.77 \pm 0.87 post intervention; $p < 0.001$). Obesity and early menarche were not perceived as risk factors of BC by about 1/3 of the sample, without significant changes between the pre and post data. Knowledge of the other risk factors showed significant changes between the pre- and post-test ($p < 0.05$). The remaining risk factors were acknowledged by > 50% of the women in the post-test (table 3).

The opinion of the sampled women regarding some risk factors and preventive practices for BC showed a rather high mean (\pm SD) total opinion score before the intervention (11.3 \pm 4.0), with significant improvement in their mean (\pm SD)

Table 1. Socio-demographic characteristics of the sampled women

Characteristic	Frequency	Percentage
Marital status		
Unmarried	4	0.8
Married	411	84.6
Widow or divorced	71	14.6
Women's age, years		
< 35	83	17.1
35–44	189	38.9
45–54	149	30.7
\geq 55	65	13.4
Women's education		
Illiterate or can just read and write	363	74.7
Primary and preparatory	50	10.3
Secondary education and higher	73	15.0
Women's occupation		
Housewives	467	96.1
Workers	14	2.9
Employees/professionals	5	1
Total	486	100

Table 2. Some risk factors for BC among the study sample

Characteristics	Frequency (n = 486)	Percentage
Family history of BC		
Yes	40	8.2
No	446	91.8
Husbands' smoking status (n = 416) ^a		
Yes	198	47.6
No	218	52.4
History of treatment for breast symptoms		
Yes	24	4.9
No	462	95.1
History of treatment for gynecological symptoms		
Yes	255	52.5
No	231	47.5
Ever use of contraception (470)		
Yes	428	90.9
No	42	9.1
Number of children (470)		
1 or 2	97	23.2
3 or 4	217	44.7
5 or more children	156	32.1
History of hormonal treatment		
Yes	28	5.8
No	458	94.2

^aIncluded only married and divorced women.

total opinion score post intervention (12.9 \pm 2.8). Significant improvement in the mean opinion score was also noticed for the role of genetics, advancing age, effect of breastfeeding, effect of regular exercise, and practice of BSE (table 4).

Overall, significant improvement was shown in the percentage of women who knew how to perform BSE and in the percentage of women who ever practiced BSE after the intervention (table 5).

According to statistical regression analysis, a history of treatment of breast symptoms was associated with a higher knowledge score after the intervention. Furthermore, the women's total opinion score concerning risk factors was the only significantly associated factor with the practice of BSE during the last 6 months.

Table 3. Mean knowledge scores regarding BC before and after the intervention

Risk factor	Pre-test, correct responses		Post-test, correct responses		p value*
	n	%	n	%	
All women at risk of BC	89	18.3	119	24.5	0.022
Women with family history of BC	322	66.3	426	87.7	< 0.001
Women without children	150	30.9	257	52.9	< 0.001
High age at first delivery	208	42.8	261	53.7	0.002
Women post menopause	253	52.1	285	58.6	0.031
Obese women	181	37.2	166	34.2	0.337
Early menarche	143	29.4	127	26.1	0.244
Mean total knowledge score ^a (SD)**	2.77 (1.24)		3.77 (0.87)		< 0.001

*McNemar test, p significant at < 0.05.

**Paired samples t-test, p significant at < 0.05.

^aKnowledge score measured on a 0–1 scale for each item, and the total for all items is 7.

Table 4. Mean opinion scores regarding some risk factors and preventive practices of BC before and after the intervention

Risk factor	Pre-test, mean (SD)	Post-test, mean (SD)	p value*
Genetic role	1.90 (1.3)	2.37 (1.1)	< 0.001
Age role	1.04 (0.9)	1.26 (0.9)	< 0.001
Role of psychological factors	1.93 (1.2)	1.83 (1.1)	0.192
Effect of breastfeeding	2.32 (1.1)	2.44 (0.8)	0.043
Effect of regular exercise	1.96 (1.2)	2.38 (0.9)	< 0.001
Regular BSE	2.20 (1.2)	2.55 (0.9)	< 0.001
Mean total opinion score ^a (SD)**	11.30 (4.0)		< 0.001

*McNemar test, p significant at < 0.05.

**Paired samples t-test, p significant at < 0.05.

^aOpinion score measured on a 0–3 scale for each item, and the total for all items is 18.

Table 5. Practice of BSE before and after the intervention

Variable	Pre-test		Post-test		p value*
	n	%	n	%	
Know how to do BSE					
Yes	64	13.2	485	99.8	< 0.001
No	422	86.8	1	0.2	
Last time for practicing BSE					
1 month	9	1.9	34	7.0	< 0.001
6 months	17	3.5	353	72.6	
Don't remember	30	6.2	97	20.0	
Never had	430	88.4	2	0.4	
Total	486	100.0	486	100.0	

*McNemar test, p significant at < 0.05.

Discussion

The present study revealed that, in spite of the low education level (75% women were illiterate or could just read and write) and low information about BC and BSE, the intervention dramatically changed the participants' knowledge on risk factors and BSE. A significant improvement was observed in the women's knowledge score regarding risk factors.

The present findings illustrate the unsatisfactory basic knowledge of the sampled women on BC risk factors prior to the intervention. This may be due to the shortage of BC-related health education programs in primary health care facilities and in the media [21]. Women's limited knowledge on BC has been identified elsewhere in developed and developing countries [22].

Similar to the present findings, many studies from both developing and developed countries illustrated the effectiveness of intervention programs in increasing the knowledge on BC, its risk factors and the awareness for BC screening [23, 24]. The pre-intervention mean opinion score of some protective factors like breastfeeding was relatively high, reflecting cultural and religious factors encouraging breastfeeding [25].

The participants showed poor understanding of some BC risk factors, specifically obesity and early menarche. This may be explained by the local culture where obesity and early menarche are seen as signs of fecundity and good health.

Although the effectiveness of BSE remains controversial [26], it holds some promise of early detection of BC, especially in areas where secondary intervention facilities are scarce [27].

In conclusion, the results of this study confirm that an intervention program on BC improves the knowledge scores of the risk factors and BSE practice even in a group of women with low literacy rate living in slums.

Disclosure Statement

The authors report no conflicts of interests.

References

- 1 EMRO Technical Publications Series; in Khatib O, Modjtabei A (eds): 30WHO: Guidelines for the early detection and screening of breast cancer. Cairo, World Health Organization Regional Office for the Eastern Mediterranean, 2006.
- 2 Althuis MD, Dozier JM, Anderson WF, Devesa SS, Brinton LA: Global trends in breast cancer incidence and mortality 1973–1997. *Int J Epidemiol* 2005;34:405–412.
- 3 Ibrahim AS, Hussein H, Ismail K, Hablas A, Bar IA: Cancer profile in Gharbiah – Egypt. *Methodology and Results* 1999. Tanta, Middle East Cancer Consortium, 2002.
- 4 Elattar I, Ali-Eldin N, Moneer M, Elbasmy A: Cancer registry. Cairo, National Cancer Institute of Egypt, 2002–2003.
- 5 Kahlenborn C, Modugno F, Severs WB: Oral contraceptives and breast cancer. *Mayo Clin Proc* 2008;83:849–850; author reply 850–841.
- 6 Rosner B, Colditz GA, Willett WC: Reproductive risk factors in a prospective study of breast cancer: The nurses' health study. *Am J Epidemiol* 1994;139:819–835.
- 7 Collaborative Group on Hormonal Factors in Breast Cancer: Breast cancer and breastfeeding: Collaborative reanalysis of individual data from 47 epidemiological studies in 30 countries, including 50302 women with breast cancer and 96973 women without the disease. *Lancet* 2002;360:187–195.
- 8 Rao R, Nair S, Nair N, Kamath V: Acceptability and effectiveness of a breast health awareness programme for rural women in India. *Indian J Med Sci* 2005;59:396–403.
- 9 Omar S, Khaled H, Gaafar R, Zekry AR, Eissa S, El-Khatib O: Breast cancer in Egypt: A review of disease presentation and detection strategies. *East Mediterr Health J* 2003;9:448–463.
- 10 Lee E: Breast self-examination performance among Korean nurses. *J Nurses Staff Dev* 2003; 19:81–87.
- 11 Miller AB: Practical applications for clinical breast examination (CBE) and breast self-examination (BSE) in screening and early detection of breast cancer. *Breast Care* 2008;17:20–23.
- 12 Abdel-Fattah M, Lotfy N, Bassili A, Anwar M, Mari E, Bedwani R, Tognoni G: Current treatment modalities of breast-cancer patients in Alexandria, Egypt. *Breast* 2001;10:523–529.
- 13 El Saghir N, Khalil M, Eid T, El Kinge A, Charafeddine M, Geara F, Seoud M, Shamseddine A: Trends in epidemiology and management of breast cancer in developing Arab countries: A literature and registry analysis. *Int J Surg* 2007;5:225–233.
- 14 Elzawawy AM, Elbahaie AM, Dawood SM, Elbahaie HM, Badran A: Delay in seeking medical advice and late presentation of female breast cancer patients in most of the world. Could we make changes? The experience of 23 years in Port Said, Egypt. *Breast Care* 2008;3:37–41.
- 15 Kharboush IF, Youssef AA, Makhlof MM, Zaghoul AA, El-Hamid AA, El Masry AG: Women health in poor urban settings in Alexandria. *J Egypt Public Health Assoc* 2005;80:321–348.
- 16 Abdel-Fattah M, Zaki A, Bassili A, El-Shazly M, Tognoni G: Breast self-examination practice and its impact on breast cancer diagnosis in Alexandria, Egypt. *East Mediterr Health J* 2000;6:34–40.
- 17 Nawar L, El Kotkat H, El Helw N, Abu Elazm H, Abd Elfatah N: Informal settlement in governorates of Arab Republic of Egypt – analytical study. Cairo, The Egyptian Cabinet, Information and Decision Support Center, 2008.
- 18 Nour SA, Ragheb MS: Factors associated with breast self examination among cancer patients in Alexandria. *Bull High Inst Publ Health* 1988;18:677–694.
- 19 Zaky El-Deen M, Mitwally HH, Salem YM, Shukri R: Health beliefs of senior nursing students regarding breast cancer and breast self examination. *Bull High Inst Publ Health* 1991;21:285–292.
- 20 American Cancer Society: Cancer Facts and Figures 2005. www.cancer.org.
- 21 Milaat WA: Knowledge of secondary-school female students on breast cancer and breast self-examination in Jeddah, Saudi Arabia. *East Mediterr Health J* 2000;6:338–344.
- 22 Dandash K, Al-Mohaimeed A: Knowledge, attitudes, and practices surrounding breast cancer and screening in female teachers of Buraidah, Saudi Arabia. *Int J Health Sci* 2007;1:75–85.
- 23 Devi R, Singh MM, Kumar R, Walia I: An effective manual on breast self-examination. *World Health Forum* 1998;19:388–389.
- 24 Lu ZJ: Effectiveness of breast self-examination nursing interventions for Taiwanese community target groups. *J Adv Nurs* 2001;34:163–170.
- 25 Shaikh U, Ahmed O: Islam and infant feeding. *Breastfeed Med* 2006;1:164–167.
- 26 Larkin M: Breast self examination does more harm than good, says task force. *Lancet* 2001;357:2109.
- 27 Hill D, White V, Jolley D, Mapperson K: Self examination of the breast: Is it beneficial? Meta-analysis of studies investigating breast self examination and extent of disease in patients with breast cancer. *BMJ* 1988;297:271–275.