

Effect of Breast Self-Examination Training Program on Knowledge, Attitude and Practice of a Group of Working Women

NADIA YANNI SEIF* and MAGDA A. AZIZ**

The Departments of Community & Environmental Health Nursing and Medical Surgical Nursing**, Faculty of Nursing, Ain Shams University, Abbassia, Cairo, Egypt.*

ABSTRACT

Breast cancer (BC) is the most common form of malignant diseases in women. Meanwhile, early discovery of breast lumps through breast self examination (BSE) is important for the prevention and early detection of such disease.

Aim: The aim of this study is to evaluate the effect of breast self-examination training program on knowledge, attitude and practice of a group of working women.

Subjects and methods: The study was conducted in Medical and Nursing Faculties of Ain Shams University. The sample included 122 of a group of working women. They were selected randomly from different departments adopting the systematic approach.

Tools: Three instruments were used for data collection (pre-/post-program). they were developed and filled by the researcher (1) Self-administered questionnaire to assess knowledge level of the participants related to BC, BSE, information resources and barriers for practicing BSE. (2) An attitude rating scale to determine the participants' attitude toward BC and practice of BSE. (3) An observation checklist to assess the practices of the participants related to BSE. Two consecutive BSE training sessions were carried out, in the form of lectures, group discussions, demonstration and redemonstration by using Breast Examination Facilitating Device (BEFD). Two months later, the aforementioned tools were used for follow up.

Results: Only 10.6% and 11.5% of the total sample had satisfactory knowledge about BC & BSE, respectively on the their hand 13.1% practiced one step out of five regularly where those who had negative attitude toward BC & BSE represented 39.3%. Regarding barriers for practicing BSE, the majority (91.8%) mentioned lack of knowledge, while 50% of responses were fear and worries to discover BC. Also, no time and forgetfulness represented more than one third of the participants. After the program implementation, a remarkable improvement in participants' level of knowledge, attitude and practice was observed. The differences were statistically highly significant ($p < 0.01$).

Conclusion: The developed training program of BSE showed a significant impact in the form of a remarkable increase in the participants' level of knowledge, acquisition of ultimate promotion of positive attitude and conspicuous improvement in the participants' professioncy of BSE practice.

Key Words: Breast cancer (BC) - Breast-self examination (BSE) - Experimental study through training program.

INTRODUCTION

Breast cancer (BC) is one of the most common forms of malignancy in women. In western countries, it represents 23-28% of all cancers and almost 6% of all women will develop BC in their lifetime [27]. Meanwhile, Taguchi et al. [29] and Person & Johansson [23] mentioned that BC was ranked as the second most common cancer of women in developing countries and it is one of the major causes of death.

According to McKenna et al. [17], the annual incidence of BC worldwide will be more than one million cases by the year 2000. They reported that above the age of 30, incidence rates of BC began to rise and the highest rates were among women aged 60 and over. Furthermore, they added that cancer will become an increasingly important challenge to health services of developing countries in the coming decades.

In Egypt, BC is the most frequently diagnosed cancer among women, which constitutes 25.5% of all cancers [13]. Meanwhile, BC is the most common malignancy among females (34.7%) and represents 14% of the cancers actually registered [2,22]. Unfortunately, cancer

registration is inadequate in spite of the hospital services provided, also information is not representative of the true magnitude of BC problem [18]. According to Claus et al. [9], the international differences in BC incidence rates have been hypothesized to be partially related to variation in such factors as body weight, some aspects of diet, hormone levels and reproductive characteristics.

Regarding risk factors, Wanebo [31] stated that gender is the most important factor, which has a higher incidence and mortality rates in females than in males. Henderson [12] added the following factors: age, personal and family history, menstrual history, some nutritional factors and carcinogenic exposure. Moreover, Offit and Brown [21] mentioned that life-style related risk factors include: oral contraceptives, having no children, no breast feeding, induced abortion, hormonal replacement therapy (HRT), alcohol, smoking, obesity and high fat diet, as well as physical activity. Although some of the risk factors that increase a woman's chance to develop BC are relatively known, yet real causes of BC are not known. Meanwhile, Caplan [7] reported that patient's delay in seeking medical attention could be a contributing factor in substantial number of BC deaths. Moreover, Peters [24] reported that although survival rates are better for younger women and whose cancer was detected at an early stage, yet there was no certain way to prevent BC.

According to Ariel and Cleary [3], breast self-examination (BSE) is recommended monthly for women aged 20 and over as a screening modality for early detection of BC. Also, Taguchi, et al. [29] stated that the best plan for women at average risk of BC is to reduce risk factors whenever possible and follow the prevention guidelines for early detection. He added that to detect earlier stages of BC and to stop the increasing mortality rate, there was a greater need for mass screening.

According to Bhakta [5] and Person & Johannsson [23], the factors of decisive importance for women's barriers to perform BSE are: forgetfulness, anxiety/fear of discovering lumps and/or abnormalities and no faith/trust in one's own ability to perform BSE, in addition to availability of resources (models, prints) religious beliefs, psychological attributes, perception of causes of BC, inability to obtain needed

medical services, as well as absence of specific training programs. Reeves et al. [20] emphasized the importance of BSE, which is advocated widely as the best method to reduce the high rate of BC mortality among women. They added that expanding compliance needs to become a priority in practice and profession, as well as women should begin the practice of BSE at 20 years of age and make it a life-long habit.

Moreover, Leslic and Roch [16] emphasized that participants need to understand the principles of regular BSE practice and the need of promptly seeking advice. Also, they recommended BSE training program for its importance in the detection of possible BC early in its development. Wardle et al. [32] reported that the prognosis depends upon early detection and treatment. They emphasized that the importance of health responsibility was one aspect of a health-promoting life-style and BSE was a method, a priority and a challenge for women's health. Given the importance of the BC problem in terms of magnitude and severity, as well as looking at a better quality of women's health, this study was done aiming at evaluating the effect of the BSE training program on knowledge, attitude and practice of the working women.

PATIENTS AND METHODS

Research design:

A quiz experimental research was designed in four steps: pre-program, program intervention, post-program and follow-up for the effect of the training program. The intervention tackled the three main areas: knowledge, attitude and practice of the subjects regarding BC and BSE.

Setting:

The study was conducted in two academic settings: Medical and Nursing Faculties affiliated to Ain Shams University.

Sample:

A stratified random sample was selected, adopting the systematic approach, where the first name was selected by the blind method and then the procedure followed the selection of each third name from the lists of the target participants. The refusal rate represented 3%, later it was substituted from the lists. The total sample size included 122 working women, working in different departments of the aforementioned settings and representing the total population as

50% and 80% from the Medical and Nursing Faculties, respectively. Their ages ranged from 20 to 59 years and none of them had BC or was under the treatment of chemotherapy or radiotherapy.

Tools: Three instruments were used for data collection: (1) The self-administered questionnaire was developed by the researchers and focused on three different sections: The first section included socio-demographic data of the sample, hearing about BSE and sources of information. The second section included a series of questions, covering knowledge about BC (definition, abnormal signs and symptoms, risk factors and early detection measures). Also, it included knowledge related to BSE (definition, properties, importance/value, frequencies, proper time for BSE in relation to menstruation period and after stopping, as well as warning signs that should be urgently reported). The third section involved 10 multiple choice questions to select the technique and methods used when examining their breasts. These included: different positions, sites to be examined, abnormal signs to look-for, methods of palpation and warning signs to be urgently reported. The questionnaire format included 32 subquestions, one score assigned for each part. The satisfactory score ranged from 50 to 100% and unsatisfactory score was 0-49 percent.

(2) The attitude rating scale was adopted from Abdallah [1], adapted by the researchers and filled by the participants. It included five points. The score range was from 3 to 1, three points were given to agree, two points for uncertain and one for disagree response. Each item score was calculated by summing up the scores of all related statements.

(3) An observation checklist was developed and filled by the researchers. It considered the five steps undertaken during BSE and the changes that were likely to be noticed through phases labeled as preparatory (Step 1), observation step 2), inspection (step 3), technique (step 4) and palpation (step 5). Each phase involved number of items, each item was scored separately, the score of each item was classified as 60-100% for satisfactory (i.e. done correctly), while 0-59% for unsatisfactory (done incorrectly and/or incomplete).

A pilot study was conducted on ten working women from the aforementioned settings to

measure the feasibility of the study settings, content validity of the tools and time required for the completion of each study tool. Results obtained were useful in appraisal and modification of the tools. Those subjects were later excluded from the study sample.

The program intervention:

At first an official letter was issued to the administrator of the pre-mentioned settings to get the permission for data collection and program implementation. Data collection started at the assessment phase and lasted from January to March 1998. The training program was designed based on analysis of the collected data and implemented by using the pre-constructed tools. The objective of the program were established and guided by the previously determined educational needs, in order to raise awareness of the study sample regarding BC & BSE and to demonstrate greater proficiency in BSE practice. Accordingly, each faculty group of the working women was divided into subgroups, each group consisted of 10-15 participants, the subjects in each subgroup were given intensive theoretical and practical sessions in BC & BSE.

The theoretical part of the program presented in two sessions as lectures/discussions followed by the second part which consisted of two subsequent reinforcement sessions for practice (demonstration and redemonstration) with multiple reminders to practice the BSE technique. Three teaching methodologies were used: lecture, supervised practice by using Breast Examination Facilitation Device (BEFD), which consists of three different sizes of breast model with multiple implanted lumps as a shield between breast and fingers, for women who are reluctant to touch their breasts. The third methodology was the distribution of BSE content, which involved self-explanatory pictures illustrating the positions and procedures of BSE. The program content, sessions, teaching methods and media were formulated and organized into an instructional plan.

Evaluation of the program was completed using the three aforementioned tools (pre-/post-program and follow-up). During program implementation, the majority of the subjects were not punctual, because all of them were selected from different departments. Hence, most of the teaching (theoretical and practical) sessions were done for small groups (10-15 partici-

pants), which consumed much time and efforts from the researchers to cover the whole sample. Yet, the work was very interesting.

RESULTS

Findings of this quiz experimental study were derived from the effect of BSE training program on knowledge, attitude and practice of a group of working women before and after program intervention. Findings clarified the social-demographic characteristics of the working women, where their ages ranged from 20 to 50+ years and their mean age was 37 ± 6.9 years. The majority (81.1%) were married and similar percentages (9.8% & 9.0%) were single and widowed/divorced, respectively. The majority of the sample (98%) had no family history of BC, while 2% of them reported that their cousins had. Almost three-fifths of the sample (58.2%) were university graduates, while more than two-fifths (41.8%) were secondary school graduates and 40.2% and 41.8% were working in a clerical and technical job, respectively. Only 18.9% were working as professionals. The majority of the participants (85.2%) had L.E. 250+ as a monthly income.

As regards sources of information, Fig. (1) displays that only one-fourth of the participants heard about BC and BSE from various sources. The main resource was the peer group (47.8%), while the media (as T.V., radio, newspapers and magazines) represented 30.4% and books represented (13.1%). Those who mentioned health team (as nurses or physicians) represented 9.0%, which is the least one.

Concerning knowledge level of the participants, findings in table (1) illustrate that only 10.6% & 11.5% had satisfactory knowledge, about BC and BSE, respectively. After the program intervention, a remarkable improvement in participants' level of knowledge (96.7% & 95.%) was observed in comparison to pre-program. Significant differences were found between results of pre-/post-program. Regarding results of the follow up (2nd post-program test) the frequency of improvement decreased to 82% for all items. Seriousness of BC and early preventive measures (BSE) represented 90.2% & 97.5%, respectively. Meanwhile, the difference was statistically highly significant ($p < 0.01$).

Regarding the participants' practices to BSE,

table (2) shows that before the program, 5.2% of the working women only practiced three steps out of 5 of BSE, regularly three times a year. Only 4.9% of them practiced step 2 and 3. Technique phase of BSE was practiced by only 3.3%, while 13.1% of the sample practiced only step 5. After the program, a significant improvement was observed in the subjects practices in relation to step 1, step 2 and step 3 (96.7% & 95.1% & 90.2%, respectively) in comparison to pre-program. For steps 4 & 5, the findings showed a significant improvement (78.7% & 81.1%), in comparison to pre-program. The differences between pre-/post-program were statistically highly significant. After the follow up test, it was found that the frequency of improvement in BSE practice decreased to 76.7%. Yet, the statistical difference was also highly significant ($p < 0.01$).

As regards participants' attitudes to BSE and its practice, the present study (table 3) highlighted that a relative improvement (72.1%) was observed in those who had positive attitude after the program, in comparison to pre-program (60.7%). Those who had negative attitude before program (39.3%), their percentage relatively decreased to 27.9% post-program, while significantly decreased to 4.9% in the follow up. The differences in the participants' attitudes was highly statistically significant between pre-program and the follow up ($p < 0.01$).

Concerning barriers of the participants to practice BSE monthly (table 5) lack of knowledge (about BSE and its value) was the most frequently cited reason (91.8%). Half of the participants' responses were wariness to find a lump. More than one-third (35.2%) mentioned forgetfulness. Those who mentioned no time and culture and health beliefs represented the same percentage (31.1%). Meanwhile, dislike to touch one's own breasts represented 23%. Also, inavailability of the specialized centers was reported by only one-tenth of the sample (20.5%). After the program intervention, 12.3% & 13.1% of the participants still complained from culture and health beliefs and fear & wariness to discover BC, respectively. However, the rest of barriers almost disappeared. A statistically significant difference ($p < 0.01$) was observed between results of pre-/post-program regarding the improvement in the pre-mentioned topics of barriers.

Regarding relation between knowledge, age and education level, table (6) illustrates that the participants aged < 40 years, had the higher percentage (22.7%) of satisfactory knowledge pre-program, than those aged 40+ years (10.6%). also, the university graduates had a significant percentage of satisfactory knowledge (25.4%) than the secondary school graduates (7.8%). There was a highly statistically significant difference between the improvement in knowledge level of the participants, aged < 40 & 40+ years pre-/post-program ($p < 0.01$). Meanwhile, the improvement in knowledge level of both university and secondary school graduated was highly statistically significant in the pre-/post-program ($p < 0.01$). However, results showed a

general need for knowledge and practice about BC and BSE among the working women.

Table (7) illustrates the relation between practice of BSE, age and educational level. It shows that inspite of the low percentages (10.6% & 4.5%) of participants' practices, aged < 40 years and 40+ year pre-program, findings proved that the two groups increased significantly in their frequency of BSE practice and level of confidence post-program (90.9 & 75.04%, respectively). Meanwhile, higher percentage of the university graduates (90.1%) achieved a satisfactory level of BSE practice, than those graduated from secondary school (74.5%) post-program. The differences were statistically significant ($p < 0.01$).

Table (1): Knowledge level of the study participants regarding breast cancer and breast self-examination (pre/post-program).

Items	Scale N=122	Pre-Prog.		Post-Prog.		Follow up	
		Satisfactory		Satisfactory		Satisfactory	
		No.	%	No.	%	No.	%
<i>A- Knowledge related to BC:</i>							
Definition		10	8	98	80	81	66
Risk factor		6	5	110	91.2	99	81.1
Signs and symptoms		9	7	112	91.8	97	79.5
Seriousness of BC		15	12	90	73.8	110	90.2
Early preventive measure		23	9	100	82	119	97.5
Total		13	10.6	118	96.7	101	83
<i>B- Knowledge related to BSE:</i>							
Definition		23	19	118	98	88	72
Properties		20	16	118	97	80	66
Importance/value		15	12.3	112	91.8	74	61
Frequency		16	13.1	122	100.0	122	100.0
Right time for BSE in relation to:							
a- Menstruation period		0	0.0	122	100.0	110	92.0
b- After stopping		0	0.0	122	100.0	98	80.3
<i>Technique/methods:</i>							
Abnormal signs to look		18	19	122	100.0	122	100.0
Position		23	18.9	98	80	83	68.0
Sites to be examined		20	16.4	122	100.0	122	100.0
Methods (breastpalpation)		10	8	100	82.0	85	70
Warning signs to be urently reported		9	7	120	98.4	110	90
Total		14	12	116	95	99	82
<i>Heard about BSE:</i>							
Yes		30	24.6				
No		92	75.4				

Table (2): Practice level of the study participants regarding breast self-examination.

Items	Scale	Pre-Prog.		Post-Prog.		Follow up	
		Satisfactory		Satisfactory		Satisfactory	
		No.	%	No.	%	No.	%
<i>Methods/techniques:</i>							
Preparatory phase (step 1)		0	0.0	118	96.7	98	80.3
Observation phase (step 2)		6	4.9	116	95.1	98	80.3
Inspection phase (step 3)		6	4.9	110	90.2	98	80.3
Technique phase (step 4)		4	3.3	96	78.7	87	71.3
Palpation phase (step 5)		16	13.1	99	81.1	87	71.3
Total		6	5.2	108	88.5	468	76.7

Table (3): Attitude of the study participants regarding breast self-examination pre-/post-program.

Items	Pre-Prog.		Post-Prog.		Follow up	
	Satisfactory		Satisfactory		Satisfactory	
	No.	%	No.	%	No.	%
Positive	74	60.7	88	72.1	116	95.1
Negative	48	39.3	34	27.9	6	4.9

$\chi^2 = 41.95$ p value < 0.01 highly significant.

Table (4): Summary table for the total levels of knowledge attitude and practice of the study participants regarding BSE (pre- and post-program).

Items	Pre-Prog.		Post-Prog.		Follow up		p value
	Satisfactory		Satisfactory		Satisfactory		
	No.	%	No.	%	No.	%	
Knowledge	18	15	116	95.1	98	80	< 0.01
Attitude	74	61	88	72.1	116	95.1	< 0.01
Practice	6	5.2	105	86	88	72	< 0.01

Table (5): Barriers for practicing breast self-examination among the study participants.

Items	Pre-Prog.		Post-Prog.	
	No.	%	No.	%
Lack of knowledge	112	91.8	0	0.0
Dislike to touch breasts	28	23.0	0	0.0
Fear/worry to find a lump	62	50.8	16	13.1
No time	38	31.1	3	2.5
Forgetfulness	43	35.2	5	4.1
Culture and health beliefs	38	31.1	15	12.3
Inavailability of specialized centers	25	20.5	0	0.0

Table (6): Relation between knowledge, age and educational level of the study participants.

Item	Pre-Prog.		Post-Prog.		X ²	p value
	Satisfactory		Satisfactory			
	No.	%	No.	%		
<i>Age:</i>						
< 40 (n=66)	15	22.7	63	95.5	116	< 0.01
40+ (n=56)	7	10.6	51	91.1	6	< 0.01
<i>Education:</i>						
Secondary schools (n=51)	4	7.8	42	82.4	116	< 0.01
University graduates (n=71)	18	25.4	62	87.3	6	< 0.01

Table (7): Relation between practice of BSE, age and educational level of the study participants.

Item	Pre-Prog.		Post-Prog.		X ²	p value
	Satisfactory		Satisfactory			
	No.	%	No.	%		
<i>Age:</i>						
< 40 (n=66)	7	10.6	60	90.9	85.14	< 0.01
40+ (n=56)	3	4.5	42	75.0	56.5	< 0.01
<i>Education:</i>						
Secondary schools (n=51)	2	3.9	38	74.5	53.3	< 0.01
University graduates (n=71)	8	11.3	64	90.1	88.36	< 0.01

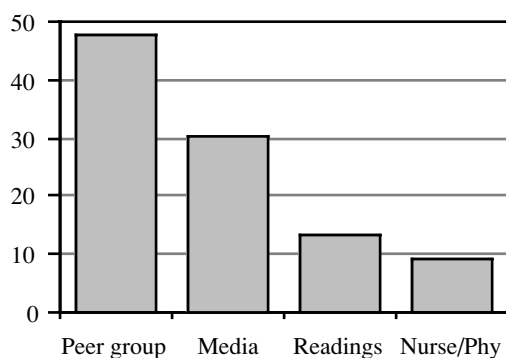


Fig. (1): Information resources of the study participants regarding BSE.

DISCUSSION

The present study aimed at evaluating the effect of breast self-examination training program on knowledge, attitude and practice of the working women. According to Smigel [28] the ultimate goal of BC prevention strategies is to reduce the incidence of this disease among population. He added that early detection practices of BSE could be achieved by adding cognitive and emotional component to the existing scale. Nevertheless, Reading et al. [25] stated that the

objective of breast health education cells for an increase of the public knowledge about BC and the benefit of screening. Also, they mentioned that periodic re-evaluation of BSE is needed to reinforce its importance and redemonstrate its technique.

Table (1) illustrated that the majority of the participants were located between the age 30-40 years. This is in consistency with results of Gaudett [11] and Mekenna et al. [17] who reported that after the age of 30, incidence rates of BC begin to rise and the highest rates were among women aged 60 years and over, those who should be targeted as a group that needs assistance with compliance and regular BSE. Meanwhile, Benedict et al. [4] stated that it was essential that all women should be informed about BSE and be covered by systemic education. Moreover, Person et al. [23] recommended that in order to make BSE a habit, education about BSE ought to be started for girls at school age.

Almost one-fourth only of the participants heard about BSE from different information re-

sources. The main source was peer group (47.5%), this could be due to the long time that working women spent with each other at the workplace, discussing different issues, which creates strong relation among each other. This result is congruent with WHO [33] which reported that family and friends were significant motivators to practice BSE. Meanwhile, it was striking to find that those who mentioned health team (nurses/physicians) as a source of information represented less than one-tenth of the sample, while they could play a major role in teaching, counseling and convincing women to practice BSE. This result could be attributed to carelessness of the participants in seeking proper medical advice, or due to inavailability of the resource centers, in addition to the existence of multibarriers to practice BSE according to the participants' responses in the present study.

However, Kushnir et al. [15] and Forte [10] emphasized that BSE was considered one of the significant indicators for women's health responsibility. also, they recommended that national information resources should be available, in order to ensure that women of all ages, who detected changes in their breast could be referred to specialized centers. Consequently, further assessment could be made and appropriate action could be taken. Moreover, health team could give full instruction about phases/procedures of BSE. Furthermore, Person et al. [23] reported that the nurse could help women to understand how they could get benefit from breast awareness and remind them to practice BSE.

As regards participants' level of knowledge, the majority of the sample had unsatisfactory information about BC & BSE before the program (table 1). This could be attributed to the inavailability of the specialized centers (information resources) or shortage of health educational programs presented in the mass media about BC and importance of BSE, as well as poor awareness related to the value of health. Post-program, the improvement in the participants' level of knowledge increased significantly (82%). This could be due to the clarity, simple language, consistency of the program, proper methods of teaching and media used. Also, the participants' readiness to promoting and maintaining a healthy life-style was involved. This is in agreement with the results of Budden [6] and Nour & Ragheb [20]. On the other

hand, results of the follow up showed relative decrease in comparison to pre-program. Yet, knowledge related to seriousness of BC and early preventive measures presented higher percentages (90.2% & 97.5%). This could be attributed to the hard lesson they learned from the experience of two colleagues who discovered a lumps during the program implementation and lasted with surgical interference (radical mastectomy), also followed by chemotherapy and radiotherapy.

Regarding participants' practices to BSE, the findings of the present study showed that those who had unsatisfactory knowledge (82.8%) pre-program were not practicing BSE. This result supports the results of Nour and Ragheb [20] who stated that women who lacked sufficient knowledge about BSE avoided its practice. After program implementation, findings showed a significant increase in the knowledge level, which in turn increased the subject's self-awareness about the value of health and the importance of practicing BSE. This could be attributed to the effective use of Breast Examination Facilitation Device (BEFD) as a simulation model. This result is congruent with Leslie & Roch [16] who emphasized that the significant effect of BEFD (which has three different sizes of breast not one) facilitated the teaching/learning of BSE.

Meanwhile, the present results support those of Smigel [28] who assured that correct practice of BSE was positively associated with breast lump detection ability. This finding is supported by the present study, where unfortunately two of the present study samples discovered that they had breast lumps (one woman had one lump and the other had two, similar to what the model had and prompt referrals were done to the surgical department.

Concerning the participants' attitude toward BSE (concept, importance, value, properties and practice), table (3) illustrated that almost two-fifths (39.3%) had negative attitudes and misconception toward BSE pre-program. This result could be attributed to the horrible feelings of each participant toward such disease (BC) of an unknown cause, non-specific treatment and the poor prognosis. In addition some participants believed that this disease was a kind of punishment from GOD for an evil person. Also, this result is in agreement with Omar

& Contesso [22] who mentioned that the matter of BSE was unique and complex in developing countries because the attitude about one's body was permeated by culture aspects, taboos, beliefs and values.

Meanwhile, BC involves an emotionally and sexually important part of women's body. Therefore, requesting women to examine their breasts monthly may induce fear, anxiety or denial behavior especially if they worry that BC will be followed by a mutilating surgical procedure [30]. However, after the program implementation findings showed that the negative attitude relatively decreased (27.9%) post-program and remarkably decreased (4.9%) in the follow up. This result could be due to the hard lesson that the participants learned from their colleagues, who discovered accidentally that they had breast lumps and went through radical mastectomy, chemotherapy and radiotherapy. Meanwhile, the difference was highly statistically significant between the positive (95.1%) and negative (4.9%) responses ($p < 0.01$) of the follow up test. This could be attributed to the effectiveness of the program and readiness of the participants, in addition to the hard lesson they learned from the experience of their colleagues.

As for the barriers or reasons for not practicing BSE, data analysis (table 4) showed that the majority of the subjects mentioned lack of knowledge. The participants' responses were almost correct because those who had lack of knowledge about BSE did not practice it. This result is in consistence with Nour & Ragheb [20] and Carpenter & Colwell [8] who assured the strong relationship between knowledge and self-efficacy related to BSE. The second main barrier, as mentioned by half of the participants, was fear and worries to discover BC. This could be attributed to the erroneous concepts that the participants believe in. Meanwhile, this result is congruent with Benedict et al. [4] and Katz [14] who emphasized the same barrier. Forgetfulness and lack of time represented almost the same percentage. This result could be due to the multi-responsibilities of the working women, related to work and home affairs, also shortage of time urge the working women to postpone their own affairs for the sake of other family members. Additionally, culture and health beliefs represented almost one-third which was consistent with Morgan et al. [19]

and Forte [10] who stated that these were various contributing factors which might prevent them from undergoing early detection measures of BSE.

Those who reported fear/dislike to touch their own breasts and inavailability of the specialized information centers represented more than one-fifth of the participants. This could be due to fear of finding lumps or lack of confidence in their ability to perform BSE. This result supports the result of Leslie & Roch [16] who reported the same result. Additionally, Caplan [7] mentioned that delay in seeking medical advice could be a contributing cause in a substantial number of BC deaths.

Also, findings assured that teaching the realistic risks of developing BC and the importance of BSE reduced the amount of fear/wariness. In addition, the negative attitude of the sample to perform BSE was relatively changed. This is in agreement with Nour & Ragheb [20] who emphasized that by careful training and instructions about BSE procedures, target population would be able to overcome any adverse effect. Consequently, the improvement in the total score levels of knowledge, attitude and practice of the working women post-program and in the follow up was highly statistically significant in comparison to pre-program results. This result also emphasized the readiness of the working women to gain more information and acquire skill, in addition to the positive effect of the BEFD [16].

Conclusion:

- The majority of the study sample had unsatisfactory knowledge related to BS & BSE, had negative attitude toward both items as well as not practicing BSE.
- The developed training program of BSE showed a significant impact in the remarkable increase of the participants' level of knowledge, acquiring the ultimate promotion of positive attitude and noticeable improvement in the participants' proficiency of BSE practice.

Recommendation:

- Periodic follow up of the same study participants can identify the effect of time on the retention of the adopted knowledge, positive attitude and practice of trainees.
- BSE training program should be adopted as an

element of the services offered to the working females.

- Provision of effective updated audiovisual aids such as overhead projectors and Breast Examination Facilitation Device (BEFD) as a model for different sizes of breast, in addition to instructional self-explanatory materials.
- Establishment of specialized resource centers in different governorates of Egypt, rural and urban areas to promote and integrate BSE training program to all working females.
- Healthy and positive attitude about BSE should be encouraged in girls in the early school age rather than teaching it when grown up.
- All channels of the national mass media could efficiently be utilized to cultivate or disseminate a healthy positive attitude towards BSE by presenting specific programs associated with BSE and women's health.
- Development of a motivation system in the form of certificates.
- Further research studies should be undertaken on the working women to investigate the confounding factors that hinder them from practicing BSE and solving the problems.

REFERENCES

- 1- Abdallah F.: Likert type scale, better patient care through nursing research. Second ed New York Macmillan Publishing Co., 705, 1979.
- 2- Aboul-Nasr A.L., Boutros S.G. and Hussein M.H.: The cancer registry for metropolitan Cairo area, progress report, 7: 12, 1982.
- 3- Ariel J.M., Clearly J.B., et al.: Breast cancer diagnosis and treatment. New York: Mc Grow-Hill, 1987.
- 4- Benedict S., Goon G., Hoomani J. and Holder P.: Breast cancer detection, cancer port, 5: 213-9, 1997.
- 5- Bhakta P.: Women's attitudes to breast self-examination Nurs. Times Feb., 91 (8): 44-7, 1995.
- 6- Budden L.: Young women's breast self - examination knowledge and practice. J. Community Health Nurse, 12 (1): 23-32, 1995.
- 7- Caplan L.S.: Patient delay in seeking help for potential breast cancer. Public Health Rev., 23 (3): 263-72, 1995.
- 8- Carpenter V. and Colwell B.: Cancer knowledge, self-efficacy and cancer screening behaviors. J. Cancer Educ., 10 (4): 217-22, 1995.
- 9- Claus E.B., Risch N.T., Thompson and W.D.: Age at onset as an indicator of familial risk of breast cancer. American Journal Epidemiology, 131: 961-972, 1993.
- 10- Forte D.A.: Community-based breast cancer intervention program for older women. Public Health Dept., 110 (2): 179-83, 1995.
- 11- Gaudett L.A., Silberger C., Almoyn and Gao R.N.: Trends in breast cancer incidence and mortality. Health Rep., 89: 29-37, 1996.
- 12- Henderson C.: Risk factors for breast cancer development. Cancer Suppl., 6: 2127-2140, 1995.
- 13- Ibrahim A.S. and Aref N.A.: The registry of National Cancer Institute in Cairo: 12 years experience. The Egypt Journal of Oncology, 1: 10, 1982.
- 14- Katz R.C., Meyers K. & Walls J.: Cancer awareness and self-examination: practices in young men and women. J. Behav. Med., 18 (4): 377-84, 1995.
- 15- Kushnir T., Robinowitz S., Melamed S., Weisberg E. and Ribok J.: Health responsibility and workplace health promotion among women: Early detection of breast cancer. Health Care Women Int., 16 (4): 329-40, 1995.
- 16- Leslie N.S. and Roch B.G.: Evaluation of a breast examination facilitation device. J. Adv. Nurs., 21 (1): 28-33, 1995.
- 17- Mekenna R.S., Greene P., Winchester D.P., Baines C.T., Foster R.S., Champion V.L. and Omalley M.S.: Breast self-examination and physical examination. Cancer, 69 (7): 2003-4, 1992.
- 18- Mohamad M.: "Early detection of occult bone metastasis in cancer breast" Master thesis, Cairo University, 1987.
- 19- Morgan C., Park E. and Cortes D.E.: Beliefs, knowledge and behavior about cancer among urban women. J. Natl. Cancer Inst., 18: 57-63, 1995.
- 20- Nour S.A. and Ragheb M.S.: Factors associated with breast self-examination among cancer patients in Alexandria. The bulletin of the high Institute of Public Health Vol. X111. No. 4, 1988.
- 21- Offit K. and Brown K.: Quantitating familial cancer risk: A resource for clinical oncologists. Journal of Clinical Oncology, 12 (8): 1724-1736, 1994.
- 22- Omar S. and Contesso G.: Breast cancer Korbo international company, Cairo, 2-72, 1983.

- 23- Person K., Johansson I. and EK-AC: Breast self-examination among Swedish women: a survey of frequency, knowledge and attitudes. *J. Cancer Educ.*, 18 (3): 163-7, 1995.
- 24- Peters J.: Familial cancer risk: Part I: Impact on today's oncology practice. *Journal of Oncology Management*, 3 (5): 18-30, 1994.
- 25- Reading D.J., Haber J.A. and Lapp K.A.: The healthy people 2000 National Health Promotion and disease prevention project "breast health education demonstration project" *Pract.*, 3: 295-302, 1995.
- 26- Reeves M.I., Newcomb P.A., Remington P.L. and Mareus P.M.: Determinants of breast cancer detection among women, *Cancer Causes Control Mar.*, 6 (2): 103-11, 1995.
- 27- Shattuch E.D., McClure M. and Simard J.: A collaborative survey 80 mutations in the BRCA1 breast and ovarian cancer susceptibility gene. *JAMA*, 273 (7): 535-541, 1995.
- 28- Smigel K.: Breast cancer prevention strategies. *Oncology*, 90: 161-8, 1998.
- 29- Taguchi T. and Shiba Takai S.: "Characteristics of screening-detected breast cancer and trends in its therapy" *Gan-to-Kagaku-Ryoho*, 25 (10): 1493-8, 1998.
- 30- Thomas S.M. and Fiek A.C.: Women's health. Part II: Individual environmental and economic factors affecting adherence to recommended screening for breast cancer. *J. Lo. State. Med. Soc.*, 147 (4): 149-55, 1995.
- 31- Wanebo H.J.: Advances in breast and endocrine surgery. Year Book Medical Publisher, London, 25-34, 1983.
- 32- Wardle J., Sleptoe A., Smith H., Groll-Knopp E., Roller M., Smith D. and Brodziak A.: Breast self-examination: Attitudes and practices among women, 1995.
- 33- W.H.O.: Diabetes mellitus and exercise. *Med. Clin. Ann. No.*, 96: p140, 215, 1982.