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The Impact of Educational Workshops on Women's Knowledge Regarding Breast Cancer and Early Detection

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Abstract

Background: Breast cancer is a significant public health problem in both developed and developing countries. Early detection is essential to reduce morbidity and mortality due to breast cancer. **Aim**: The current research aimed to evaluate the effectiveness of an educational workshop on women's knowledge regarding early detection of breast cancer. **Method**: A study was conducted at Al-Andalus University for Medical Sciences, Tartous, Syria, using a quasi-experimental design. The participants were 70 women selected through convenience sampling. The study used a pretest and posttest design with one group. The workshop consisted of a PowerPoint lecture and a practice session on breast self-examination using a breast model. Questionnaires were administered before and after the workshop to collect data. The collected data was analyzed using the SPSS (version 20) with a significance level set at 0.05. **Results**: The results of this research indicated a significant difference in the level of knowledge of the participants before and after the workshop. **Conclusion**: The data showed a statistically significant improvement in their knowledge following the workshop ($p < 0.05$). According to these findings attending the educational workshops had a positive impact on increasing awareness and knowledge about the early detection of breast cancer.

Keywords: breast cancer, breast self-examination, early detection, education, knowledge.

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تأثير ورش العمل التثقيفية على معرفة المرأة بسرطان الثدي والكشف المبكر

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الخلاصة

خلفية: سرطان الثدي هو مشكلة صحية عامة كبيرة في كل من البلدان المتقدمة والنامية. الاكتشاف المبكر ضروري للحد من المرض والوفيات بسبب سرطان الثدي. الهدف: يهدف البحث الحالي إلى تقييم فعالية ورشة عمل تثقيفية حول معرفة المرأة فيما يتعلق بالكشف المبكر عن سرطان الثدي. الطريقة: أجريت دراسة في جامعة الأندلس للعلوم الطبية، طرطوس، سوريا، باستخدام تصميم شبه تجريبي. كان المشاركون 70 تم اختيار النساء من خلال أخذ العينات الملائمة. استخدمت الدراسة تصميم الاختبار المسبق وبعد الاختبار مع مجموعة واحدة. تألفت ورشة العمل من محاضرة باور بوينت وجلسة تدريبية حول الفحص الذاتي للثدي باستخدام نموذج الثدي. تم إدارة الاستبيانات قبل وبعد ورشة العمل لجمع البيانات. تم تحليل البيانات التي تم جمعها باستخدام SPSS (الإصدار 20) مع مستوى أهمية تعيين في 0.05. النتائج: أشارت نتائج هذا البحث إلى اختلاف كبير في مستوى معرفة المشاركين قبل وبعد ورشة العمل. الخلاصة: أظهرت البيانات تحسنا كبيرا إحصائيا في معرفتهم بعد ورشة العمل (ع < 0.05). وفقا لهذه النتائج، كان لحضور ورش العمل التعليمية تأثير إيجابي على زيادة الوعي والمعرفة حول الكشف المبكر عن سرطان الثدي.

الكلمات المفتاحية: سرطان الثدي ، الفحص الذاتي للثدي ، الكشف المبكر ، التعليم ، المعرفة

Introduction:

When developing oil fields, modern companies always strive to extract Breast cancer, which is the most prevalent malignancy and leading cause of mortality among women [1,2], poses a serious public health impact in both developed and developing countries, as it has a high incidence-prevalence, and over-burdens the healthcare system. [3,4] Every 3 minutes, a woman is diagnosed with breast cancer, making it the most common cancer among women globally. [5]

It appears that breast self-examination (BSE) is a beneficial practice due to being an easy, cost effective, comfortable and private action. Moreover, it does not necessitate any special equipment or long duration to accomplish. It empowers women to manage their own health and learn about their bodies. [6, 7] BSE raises awareness of the condition of breasts among women and helps detect potential breast problems. Since many women experience breast tenderness and lumpiness before menstruation, many healthcare providers advise women to perform a monthly BSE 5–7 days after their periods. [8]

Many studies have found that lack of knowledge about risk factors, initial symptoms, screening and treatment is one of the main factors that affect the delayed presentation of women to treatment. [9] Pineros et al. reported that about 40% of women delay seeking help because of a lack of awareness about the initial symptoms of breast cancer. [10]. Insufficient education was the most critical concept in a qualitative study by Nizamli et al. that explored the perception of care among Syrian women with breast. [11] Another study suggests that women who get personal instruction on BSE from a healthcare professional have more knowledge and confidence and are more likely to do BSE regularly than those who learn about the method from other sources. [12] Breast cancer education programs increase

public knowledge of early detection, [13] with cognitive factors playing an essential role in BSE performance. [14] Assessment of International screening programs in Scandinavian countries has shown mortality rates falling by 31% after seven years for women aged 40–74 at the beginning of the trial. [15] Breast-cancer educational workshops often cover breast cancer risk factors, statistics, and early detection through screening and BSE demonstration on a simulated breast model. [16]

Mass media campaigns, internet resources, and health education programs promote awareness of breast cancer and early detection in Syria, but their effectiveness remains unassessed. This study aims to investigate the efficacy of educational workshops to improve women's early detection knowledge.

METHOD

Design

A pre-test and post-test quasi-experiment was designed for a single group to assess the impact of the educational workshop on the knowledge about breast cancer early detection.

Sampling

A convenience sample of 70 women at Al-Andalus University for Medical Sciences, Tartous, Syria, was included in this study. The sample size was large enough to demonstrate an improvement in women's knowledge. The candidates included were women aged 20 or older who could speak and write Arabic.

Data collection

The tool for data collection was a structured self-administered questionnaire that the author developed based on the literature. Internal consistency was tested among the questionnaire items with Cronbach’s alpha (α) 0.85, and it was considered within the acceptable range. A panel of 5 experts in the academic and health fields revised and validated the questionnaire. They agreed and had

no comments. The questionnaire consisted of three main sections:

1- Demographic information of the respondents (age, educational level, social state, menopause state, etc.),

2- Knowledge of women about breast cancer: Signs and symptoms, risk factors and prevention methods of breast cancer

3- Knowledge of women about BSE: identification of the BSE, advantages of the BSE, characteristics of cancerous mass, time and age should BSE be practised.

The knowledge scores were classified as poor knowledge less than 30%, moderate knowledge 30-70%, and good knowledge 70% and above. A score of 1 was given for a correct answer, 2 for incorrect. The workshop was planned and designed by the researcher. The components of the educational workshop were as follows: 1. Introduction: A. Statistics on the prevalence of breast cancer in the world and Syria. B. Anatomy of the breast. C. Signs and symptoms of breast cancer. D. Risk factors of breast cancer. E. Importance of early detection of breast cancer F. Methods of early detection of breast cancer G. BSE technique, timing, positions and steps. H. How to differentiate malignant from non-malignant mass. 2. Practice session: Training on BSE on normal and abnormal breast models.

Methods of teaching included a lecture, discussion, and demonstration. Five workshops were scheduled between October and November 2021. The pretest data were collected at the workshops, and then a PowerPoint lecture on breast cancer and BSE was provided for the participants. A demonstration and a practice session on BSE using a breast model were provided following the lecture. Immediately following the educational workshop, a third phase evaluation was conducted to assess the workshop's impact on women's knowledge.

Data analysis

Statistical analysis was carried out using the Statistical Product and Service Solutions (SPSS) version 20. Frequencies and percentages were used in answering the research questions.

Results:

Sample characteristics

Table (1) shows the general characteristics of the subjects. A total of 70 participants were included in the study with the age range of 20 – > 50 years old; the majority were within 30- 40 (51.4%). Out of all the participants in the study, 71.4% (50 people) were married, while 24.3% (17 people) were single. 50% (35 people) of the respondents had completed their secondary education, while 34% (24) had obtained a university degree. The majority of the participants had a moderate-income level (46.3%, n=45) and good health status (84.3%, n=59). Sixty-six participants (94.3%) were in the premenopausal stage, while only four were in menopause. Out of the seventy participants, only two (2.9%) admitted that they had a personal history of breast disease, and twelve (17.4%) had a family history of breast disease. Most of the participants stated that they had heard and read about breast cancer (81.4%, n=57) and BSE (70%, n=49).

Table 1: General characteristics of the participants:

Characteristics		Frequency (n)	Percentage (%)
Age (years)	20-30	21	30%
	31-40	36	51.4%
	41-50	9	12.9%
	> 50	4	5.7%
Marital status	Single	17	24.3%
	Married	50	71.4%
	Widowed	3	4.3%
	Divorced	0	0%

Educational level	Basic primary	11	15.7%
	Secondary	35	50%
	Universal	24	34%
Income level	Low	13	18.6%
	Moderate	45	46.3%
	good	12	17.1%
perceived health status	good	59	84.3%
	Not bad	9	12.8%
	Bad	2	2.9%
Menopausal status	Pre-menopause	66	94.3%
	Post-menopause	4	5.7%
Personal history of breast cancer	Yes	2	2.9%
	No	68	97.1%
Family history of breast cancer	Yes	12	17.4%
	No	58	82.9%
Ever heard/read about breast cancer	Yes	57	81.4%
	No	13	18.6%
Ever heard/read about breast examination	Yes	49	70%
	No	21	30%

Women's knowledge regarding signs and risk factors of breast cancer:

Before attending the workshop, 53% of the women had a moderate level of knowledge about breast cancer and early detection. However, after completion of the workshop, this level improved significantly to 91%. Tables (2) and (3) illustrate the women's responses regarding the signs, symptoms, and risk factors of breast cancer before and after the workshop.

Before the workshop, only 20 (28.6%), 22 (31.4%), 27 (38.6%), and 28 (40%) of women, respectively, responded that bloody or watery discharge from the nipple, orange peel on the breast, breast deformity, and sinking on the breast are possible signs and symptoms of

breast cancer. However, after the workshop, the number of correct answers increased to 69 (98.6%), 70 (100%), 68 (97.15%), and 69 (98.6%) respectively. Before the workshop, their awareness that starting menstruation < 12 years, excessive cigarette smoking, excessive alcohol consumption, nulliparous woman, and prolonged and early use of oral contraceptives are risk factors for breast cancer were 9 (12.9%), 18 (25.7%), 20 (28.6), 12(17.1), 17(24.3) respectively. After the workshop, the participants' correct responses improved to 61 (87.1%), 69 (98.6%), 68 (97.1%), 62(88.6), and 57(95.7) respectively.

Table 2: Distribution of women's knowledge regarding signs of breast cancer pre and post workshop:

Signs and symptoms of breast cancer	Pre- workshop				Post- workshop			
	Correct		Incorrect		Correct		Incorrect	
	N	%	N	%	N	%	N	%
Sinking on the part of the breast	28	40	42	60	69	98.6	1	1.4
Orange peel on the part of the breast	22	31.4	48	68.6	70	100	0	0
Breast deformity	27	38.6	43	61.4	68	97.1	2	2.9
Bloody or watery discharge from the nipple	20	28.6	50	71.4	69	98.6	1	1.4
A sinking of nipple in one breast	35	50	35	50	70	100	0	0
Enlarged axillary lymph nodes	36	51.4	34	48.6	66	94.3	4	5.7
Sinking and breast skin ulcers	68	97.1	2	2.9	68	97.1	2	2.9
Touch of a painless lump with the	39	55.7	31	44.3	69	98.6	1	1.4

walled in the breast								
Breast enlargement in both	31	44.3	39	55.7	66	94.3	4	5.7

Table 3: Distribution of women's knowledge regarding risk factors of breast cancer pre and post workshop

Risk Factors Related to Breast Cancer	Pre- workshop				Post- workshop			
	Correct		Incorrect		Correct		Incorrect	
	N	%	N	%	N	%	N	%
History of B.C. in another breast	33	47.1	37	52.9	65	92.9	5	7.1
Low-fat diet	12	17.1	58	82.9	8	11.4	62	88.6
Starting menstruation < 12 years	9	12.9	61	87.1	61	87.1	9	12.9
women without children	12	17.1	58	82.9	62	88.6	8	11.4
First pregnancy < 30 years	8	11.4	62	88.6	32	45.7	38	55.3
Obesity	18	25.7	52	74.3	66	94.3	4	5.7
Family history of cancer	26	37.1	44	62,9	64	91.4	6	8.6
Menopause < 50 years	11	15.7	59	83.3	22	31.4	48	68.6
Excessive alcohol consumption	20	28.6	50	71.4	68	97.1	2	2.9

Excessive cigarette smoking	18	25.7	52	74.3	69	98.6	1	1.4
Inactivity and sedentary lifestyle	20	28.6	50	71.4	65	92.9	5	7.1
Prolonged and early use of oral contraceptives	17	24.3	53	75.7	57	95.7	3	4.3
Exposure to x-rays before 30 years of age	32	45.7	38	53.3	52	74.3	16	22.9
Sun exposure	17	24.3	53	75.7	10	14.3	60	85.7

Women's knowledge regarding methods of early detection of breast cancer:

Table 4 shows that the number of participants who considered BSE, mammogram, and clinical breast examination important methods for preventing breast cancer increased from 52(74.3.%), 48(68.6%) and 55(78.6%) before the workshop to 69 (98.6%), 69(98.6%) and 70(100%) after the workshop respectively.

Table 4: Distribution of women's knowledge regarding to methods of prevention and early detection of breast cancer pre and post workshop:

Methods of prevention and early detection of breast cancer	Pre- workshop				Post- workshop			
	Correct		Incorrect		Correct		Incorrect	
	N	%	N	%	N	%	N	%
Dieting	48	68.6	22	31.4	68	97.1	2	2.9
Exercise	57	81.4	13	17.6	67	95.7	3	4.3

Vocation	25	35.7	45	63.3	7	10	63	90
BSE	52	74.3	18	25.7	69	98.6	1	1.4
Mammogram	48	68.6	22	30.4	69	98.6	1	1.4
Clinical breast examination	55	78.6	15	21.4	70	100	0	0

Women's knowledge regarding BSE and characteristics of malignant mass

When questioned about the characteristics of malignant mass, (71.4%, n=50) of participants selected mobility. However, this percentage lowered to (4.3%, n=3) after the workshop had been completed. Table (5) Prior to the educational program, the results showed that only 17 out of 70 participants (24.3%) were aware that day 5 to 7 after menstruation is a suitable day for BSE, and only 13 out of 70 participants (18.6%) knew that they should practice BSE after the age of 20. After the program, there was a significant improvement in knowledge, with all 70 participants (100%) being aware of the appropriate timing for BSE, and 66 out of 70 participants (94.3%) knowing that it should be started after the age of 20. Table (6)

Table 6: Distribution of women's knowledge regarding BSE pre and post workshop

When did you perform BSE?	Pre- workshop				Post- workshop			
	Correct		Incorrect		Correct		Incorrect	
	N	%	N	%	N	%	N	%
Immediately before	12	17.1	58	82.9	0	0	70	100

menstruation								
During menstruation	2	2.9	68	97.1	1	1.4	69	98.6
Day 5 to 7 after menstruation	17	24.3	53	75.7	70	100	0	0
At any time	42	60	28	40	7	10	63	90
At what age should BSE be commenced?								
From 15 years	11	15.7	49	84.3	4	5,7	66	94.3
From 20 years	13	18.6	57	81.4	66	94.3	4	5.7
Above 30 years	38	54.3	32	45.7	7	10	63	90

Comparison of women's knowledge pre and post workshop

Table 7 demonstrates the results of comparing participants' knowledge of breast cancer and early detection before and after the educational program. An evident improvement was noticed in the knowledge about signs and risk factors of breast cancer and in total score: pre (9.37±1.63), post (14.07±2.97) with statistical significance ($p<0.05$) and pre (7.85±2.78), post (8.22±2.59) with statistically highly significant ($p<0.001$) respectively. After attending an educational workshop, participants showed a significant increase in their knowledge of breast cancer prevention methods. The mean scores increased from 8.3±2.11 (pre-workshop) to 12.6±2.75 (post-workshop) ($p<0.001$). The workshop also resulted in significant improvement in participants' knowledge about BSE, including its definition and advantages, the characteristics of malignant masses, and when to start performing self-examinations. The differences between pre- and post-workshop scores were statistically

highly significant (p<0.001), as shown in Table 2.

Table 7: Comparison of women's knowledge pre and post workshop.

Items	Pre- workshop Mean (SD)	Post- workshop Mean (SD)	*p*- value
Signs of breast cancer	9.37±1.63	14.07±2.97	<0.001*
Risk Factors Related to Breast Cancer	7.85±2.78	8.22±2.59	0.044*
Perceived methods of preventing Breast cancer	8.34±2.11	12.06±2.75	<0.001*
Meaning BSE?	7.79±2.04	11.73±2.64	<0.001*
Advantage(s) of BSE?	10.08±3.17	14.72±1.88	<0.001*
Characteristics of the malignant mass	8.25±4.19	13.07±2.12	<0.001*
When did you perform BSE	9.16 ± 2.06	12.88 ± 3.03	<0.001*
At what age should BSE be commenced?	11.60 ± 2.26	16.78 ± 1.16	<0.001*

* Level of significance = 0.05

Discussion

This study aimed to assess the effectiveness of the educational workshops in improving women's

knowledge related to breast cancer and early detection. Participants were found to have a moderate level of knowledge before the workshop, which significantly improved to a good level following the workshop. Similar positive impact was observed in a study conducted in Egypt among female college students where the good level of knowledge on breast cancer increased from 77.2% to 95.6% of the participants. [17] Furthermore, Moussa and Shalaby reported significant improvement in participants' knowledge after the workshop, from very low levels pre-workshop. [18] According to the current study findings, more than half of women have heard or read about breast cancer and BSE. On the other hand, a study conducted by Mohamed *et al.* in Sudan showed that more than half of the sample have never heard about BSE, and revealed poor overall knowledge scores regarding breast cancer and BSE in the pre-workshop stage. [19] Our study participants were employed in medical colleges, which could explain this finding. The result of the current study revealed statistical differences between pre-workshop and post-workshop in participants' knowledge regarding signs, symptoms and risk factors of breast cancer. According to Yousuf's research conducted in 2010, there was a significant improvement in the participants' knowledge of identifying a painless breast lump and palpable axillary lymph nodes as symptoms of the disease before and after the intervention. [20] In a study conducted in KSA, it was observed that the educational sessions resulted in an improvement in women's knowledge regarding the risk factors associated with breast cancer in which a few of the participants agreed that alcohol and smoking are risk factors for the disease, and these percentages significantly increased After educational session on breast cancer. [21] However, incongruent results were observed in a recent study by Mohamed et al. in 2021, in

which smoking and alcohol consumption were identified as the most frequently chosen risk factors for breast cancer by the participants. [19]

Our study showed that education can significantly improve women's knowledge of early detection methods for breast cancer. A study conducted in 2008 revealed that many women were unaware of effective screening methods such as clinical examination and mammography, which could be attributed to the lack of information provided to them. [22] This finding is consistent with Abd Elgaffar & Atia study, which found that three-quarters of participants had poor knowledge about how to control the risk of breast cancer, and most of them did not know the meaning of BSE. However, the participants' knowledge significantly improved after education. [23] In a study conducted in Egypt, it was found that there was a significant improvement in women's general knowledge of breast cancer and BSE through an educational program. This improvement was observed in all items and in the total score. [20] Another study also confirmed the effectiveness of educational interventions in raising knowledge about breast cancer and early detection screening manners. [24]

Conclusions:

The purpose of our study was to evaluate the effectiveness of interventions aimed at increasing knowledge about breast self-examination and early detection of breast cancer. Our findings demonstrate that educational workshops are an effective way of promoting knowledge about breast cancer and its early detection for the community in Syria. We recommend the implementation of educational workshops to improve women's knowledge about breast cancer and the advantages of self-examination as an effective method for early detection. Additionally, it is

important for women to continue updating their knowledge about breast cancer and self-examination in order to improve their overall health. We suggest that similar programs be implemented in different settings to improve women's levels of knowledge, attitude, and practice of BSE.

Ethical Consideration

Before starting the study, the researcher obtained approval from Al-Andalus University Research Ethics Committee (REC). In addition, verbal informed consent was obtained from each respondent. The questionnaire was filled anonymously, and participants were assured that all information would be kept strictly confidential and used only for research purposes.

Conflict of Interest:

The authors have no conflict of interest.

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