The Impact of An Education Program upon Women's Knowledge in Managing Breast Self–Examination

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الخلاصـــة:

الهدف: للتعرّف على أيّة اختلافات ذات دلالة مَعنويّة بين معارف النساء في تدبّر الفحص الذاتي للثدي في عيّنة الدراسة والعيّنة الضابطة بخصوص بعض المتغيرات.

المنهجيـة: دراسة شبه تجريبيّة، غرضيّة (غير احتمالية) شملت (٢٦٠) إمرأة (موظفة، طالبة) في كلٍ من كليتي التمريض والتقنيات الصحية والطبية). شملت العيّنة مجموعتين؛ مجموعة الدراسة (١٣٠) إمرأة اخترن من كلية التمريض في جامعة بغداد والمجموعة الضابطة (١٣٠) من كلية التقنيات الصحية والطبية في بغداد. تضمنت استمارة الاستبيان على الخصائص الديموغرافية، المعلومات الإنجابية، التاريخ الأُسَري، التاريخ الطبي السابق ومعارف النساء حول تدبّر الفحص الذاتي للثدي. اعتمد الثبات والمصداقية لاستمارة الاستبيان، وتمّ جمع البيانات من خلال استعمال الاستمارة الاستبيانية. طبّق البرنامج التثقيفي على عيّنة الدراسة فقط في الاختبار البعدي باستعمال المحاضرات، الكتيبات، والتدريب على الفحص الذاتي للثدي وعرض فلم. أجري تحليل البيانات من خلال تطبيق الإحصاء الوصفي والإحصاء الاستدلالي.

النـتائـج: أظهرت الدراسة علاقة مهمة بين معارف النساء في تدبر الفحص الذاتي للثدي والحالة الزوجية، العقم، الرضاعة، وصلة القرابة للدرجة الثانية. اكتنتجت الدراسةَ بأنّ برنامجَ تثقيفيَ حول تدبر الفحص الذاتي للثدي، ضروريُ لكُلّ النِساء في مختلف أعمارهن ، واختلاف التاريخ الطبي، والمستويات التعليمية والحالة المهنية، وأعتبر كمتوسط فعّال لتعزيز معارفِ النِساءِ بخصوص تدبر الفحص الذاتي للثدي.

التوصيـات: تطبيق وتنفيذ البرنامج للنساء في التعليم المستمر من اجل الفحص الذاتي للثدي وضمن مجال عملهن.

Abstract

Objective: To find out if there are any significant differences between these women's knowledge in the management of Breast Self-Examination in study and control group regarding some variables.

Methodology: A quasi-experimental design was used. A purposive "non-probability" sample of (260) women who are employee and students in both colleges (Nursing and Health and Medical Technologies) was selected. The sample consists of two groups, experimental group (130) includes those in (Nursing college), and control group (130) in (Health and Medical Technologies). A questionnaire was constructed which included demographic information, reproductive information, family history, previous medical history, and information about women's knowledge in managing breast-self examination (BSE). Data were collected through the use of the questionnaire, the application of the educational program. A post-test was done for the study only which uses the lectures, booklet, training practices of BSE, and video film. Data analysis was performed through the application of descriptive and inferential statistical approaches.

Results: There are significant associations between women's knowledge regarding managing BSE and their marital status, infertility status, lactation and second degree consanguinity; also the study concluded that the educational program of BSE is necessary for all women in different age groups, with different medical histories, educational level, occupational status, and considered as an effective mean for the reinforcement of improvement of women's knowledge regarding managing BSE.

Recommendations: Implementation of proposed model of continuous medical education for women for BSE within the scope of their work.

Introductions:

Cancer is an important factor in the global burden of disease. The estimated number of new cases per year is expected to rise from 10.2 million 2002 to 15 million by 2025, 60 % of those cases exist in the developing countries [1]. Breast cancer is one of the most common diseases in which abnormal or malignant cancer cells form in the tissues of the breast [2, 3]. Breast cancer is the second most common, prevalent and diagnosed cancer that affects women and the leading cause of cancer death and disability worldwide [4, 5].

Keywords: Breast Self-Examination; Women's Knowledge

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During the past two decades, significant demographic changes have taken now sufficient evidence to indicate that cancer is becoming a major health concern for many countries in the eastern Mediterranean region.

Breast cancer is the most dangerous disease that threats women lives in Iraq for the last twenty years ago. Every year, 1000-1200 new cases are recorded, 98% of which affect women, and 2% of which affect men. Breast cancer occupies 14% of the whole diseases in different cancers and a rate of 1-6 of women are affected from every 100000 [(6)].

The last statistical studies carried out by the Iraqi Council of Cancer in 2004 recorded 2162 cases more than what it had been recorded in previous years.

Although the etiology of breast cancer is unknown, numerous risk factors may influence the development of this disease including genetic, hormonal, environmental toxins, socio-biological and physiological factors, while the risk of developing breast cancer has increased in both industrialized and developing countries by 1%-2% annually. The death rate due to breast cancer has fallen slightly [(7)].

The high incidence and mortality rates of breast cancer, as well as the high cost of treatment and limited resources available, require heavy health education and continual training in BSE [(1)]. Women's breast is exposed to many physiological changes, like period's disorder, pregnancy, lactation, contraceptive use and menopausal changes. In addition the breast is different from women to another in size, shape, and tenderness. Seventy percent of breast tumor is discovered by the women themselves, so it is important to learn how to practice breast self – examination (BSE) regularly [(1)].

It is important for women to develop the habit of doing routine BSE. Women who are liable to be affected by breast cancer are especially encouraged to be attentive to the importance of early detection through routine BSE [(8)].

To increase knowledge about breast self–examination (BSE) and early cancer detection among women, and to learn the technique, it is important for clinicians to explain the potential benefits through training to ensure breast self examination [(1)].

Methodology:

To find out if there are any significant differences between these women's knowledge in the management of breast self-examination in study and control group regarding some variables such as demographic information, reproductive information, family history, previous history and others. A quasi-experimental design was carried out throughout the present study with the application of a pre-post-test approach for the study group and control group. The study was conducted at two colleges (Nursing College and Medical and Health Technologies College), both of them are located at the center of Baghdad city, in Al-Rusafa sector. A purposive "non-probability" sample of (260) women was selected from two colleges, (130) women from College of Nursing which was considered as (experimental group), and (130) women from College of Health and Medical Technologies which was considered as (control group). The study group was exposed to an educational program; the criteria of this sample were women from different age groups, educational levels, and marital status. Content validity of the program was obtained by a panel of (29) experts who were faculty members from the college of Medicine and Nursing in Iraq. Their responses for modification were made in regard to the experts' comments and recommendations.

The educational program consists of four major parts, and it was implemented through classroom sessions which were introduced with respect to the essential information relative to the women's needs to manage (BSE). Each session was designed and scheduled for approximately (2) hours. They were presented in College of Nursing from the period of March 9th 2008 to April ^{14th,} 2008. The program sessions were managed by four methods, booklets, lectures, training through breast examination mannequin (dummy), and video film. The final step of the study was evaluation the impact of the changes that occurs in women's knowledge towards

managing performance of breast self–examination. This is done through the application of post test after implementation of the education program; also many cases were referred to Al-Elwyia Teaching Hospital; the center of early detection of breast tumors and Baghdad Teaching Hospital too due to women's detection of some problems in their breasts after their application and implementation of breast self- examination.

Study instrument

A questionnaire was constructed through the review of related literatures, previous studies, the use of information which had emerged of the prior assessment, and it was applied before implementation of an educational program. The questionnaire was used as a mean of data collection. It is comprised of two main parts, demographic information, reproductive information, family history and previous medical history and others. The instrument was constructed through the use of (3) level type Likert scale for assessing the impact of an educational program for women's knowledge toward management of breast self examination (BSE). The rating score of the instrument was (3) for Yes, (2) for Uncertain, and (1) for No. The instrument is comprised of (9) sections, each of them included several items which were concerned with information of women's knowledge regarding their management of breast self-examination (composition and formation of breast, causes of the changes in shape and size of the breast, hearing about managing (BSE), causes for not managing (BSE), objectives and causes for (BSE) performance, (BSE) performance, (BSE) method for discovering breast abnormalities, health education for (BSE), information regarding the steps for (BSE)). Data were collected through the use of the study instrument and the application of the constructed breast self-examination education program from June 11th 2007 to May 22th 2008. Interview technique with each woman took approximately (25-30) minutes, and pre-post-test approach was utilized as an appropriate mean of data collection and carried out through the following technique. Data were analyzed through the application of the following statistical approaches:

A- Descriptive data analysis (Frequency, Percentage, Mean, Cut-off-point, Stem and Leaf chart, Standard Deviation (SD))

B- Inferential data analysis (Cronbach's Alpha Correlation Coefficient, Z-test). The classification of categorical contingency was analyzed by table by using the four grades of assessments.

A scoring system was done according to the following: {Low- Low: under cut-off-point in pre and post periods, (1-1.4), Low-High: under cut-off-point in pre and post-periods, (1.5-1.9), High-Low: above cut-off-point in pre and post-periods, (2-2.4), High-High: above cut-off-point in pre and post-periods, (2.5-3)}, Chi–square, Calculated (paired) T-test, Computer program.

Results:

Table 1. Association between women's knowledge regarding managing BSE, and socio- demographic characteristics for the study group in (Pre – Post) test

List	Variables	Study Group (n=130) Pre test				χ^2	df	P-Value	Study Group (n=130) Post test				χ^2	df	P-Value
		L.L	L.H	H.L	H.H				L.L	L.H	HL	H.H			
		n	n	n	n				n	n	n	n			
1	Age by years					12.4	6	.054					6.11	4	.191
	20-29	17	15	12	1				0	1	25	19			
	30 -39	9	20	14	0				0	3	23	17			
	≥40	4	23	15	0				0	3	14	25			
2	Educational level					20.2	12	.063					2.85	8	.943
	Primary	1	1	2	0				0	0	2	2			
	Intermediate	2	2	3	1				0	1	4	3			
	Secondary	11	16	16	0				0	1	19	23			
	University	11	31	15	0				0	4	28	25			
	Higher education	5	8	5	0				0	1	9	8			
3	Marital status					11.8	3	.008					.341	2	.843
	Single	22	22	17	1				0	4	30	28			
	Married	8	36	24	0				0	3	32	33			
4	Age at marriage					16.3	9	.059					2.97	6	.812
	Single	22	22	17	1				0	4	30	28			
	< 20	3	3	5	0				0	0	7	4			
	20 – 39	5	32	19	0				0	3	25	28			
	≥40	0	1	0	0				0	0	0	1			
5	Type of family					4.08	3	.299					3.18	2	.203
	Nuclear	5	21	13	0				0	0	20	19			
	Extended	25	37	28	1				0	7	42	42			
6	Do you smoking now					1.25	3	.741					1.14	2	.566
	Yes	0	1	0	0				0	0	0	1			
	No	30	57	41	1				0	7	62	60			

Table 1. (Continued)

List	Variables	Study Group (n=130) Pre test				χ^2	df	p-value	Study Group (n=130) Post test				χ^2	df	P-Value
		L.L	L.H	H.L	H.H				L.L	L.H	HL	H.H			
		n	n	n	n				n	n	n	n			
7	Duration of smoking by year	30	57	41	1	1.25	3	.741	0	7	62	60	1.14	2	.566
	Nonsmoking														
	≥ 10	0	1	0	0				0	0	0	1			
8	Number of cigarette per day	30	57	41	1	1.25	3	.741	0	7	62	60	1.14	2	.566
	Non smoking														
	≥20	0	1	0	0				0	0	0	1			
9	Negative smoking	19	32	26	1	1.56	3	.667	0	2	42	34	4.89	2	.087
	Yes														
	No	11	26	15	0				0	5	20	27			

df= Degree of freedom; {High-High (HH)= above cut-off-point in pre and post-periods, (2.5-3)}; {High-Low (HL)= above cut-off-point in pre and post-periods, (2-2.4)}; {Low-High (LH)= under cut-off-point in pre and post-periods, (1.5-1.9)}; {Low-Low (LL)= under cut-off-point in pre and post-periods, (1-1.4)}; P-value = Probability Level; χ2= Chi-square test score

This table indicates that there is a significant difference between women's knowledge regarding managing BSE and, marital status in pre-test study group, while there are no significant differences between pre and post test for all study variables.

Table 2. Association between women's knowledge regarding managing BSE and their reproductive history for the study group in (pre–post) test

List	Variables	Study Group (n=130) Pre test				χ2	df.	P-Value	Study Group(n=130) Post test				χ2	df.	P-value
		L.L	L.H	H.L	H.H				L.L	L.H	HL.	H.H			
		n	n	n	n				n	n	n	n			
1	Age at menarche					7.03	6	.318					7.35	4	.118
	<11	3	2	2	0				0	1	6	0			
	11-12	6	23	9	0				0	1	18	19			
	≥13	21	33	30	1				0	5	38	42			
2	Regularity of period					6.14	6	.407					3.61	4	.461
	Menopausal	0	4	0	0				0	0	3	1			
	Regular	16	31	22	1				0	2	33	35			
	Irregular	14	23	19	0				0	5	26	25			
3	Age at menopause					10.7	9	.292					2.16	6	.901
	Reproductive age	30	53	37	1				0	7	57	57			
	<45	0	1	0	0				0	0	1	0			
	45-54	0	3	0	0				0	0	2	1			
	≥55	0	1	4	0				0	0	2	3			
4	Garvida					13.8	9	.128					.924	6	.988
	Single	22	22	17	1				0	4	30	28			
	Nil	0	6	2	0				0	0	4	4			
	1-3	6	20	15	0				0	2	20	19			
	≥4	2	10	7	0				0	1	8	8			
5	Parity					15.1	9	.088					3.01	6	.806
	Single	22	22	17	1				0	4	30	28			
	Nil	3	9	5	0				0	0	7	10			
	1-3	3	24	14	0				0	3	19	19			
	≥4	2	3	5	0				0	0	6	4			
6	Abortion					13.9	9	.123					2.90	6	.821
	Single	22	22	17	1				0	4	30	28			
	Nil	5	21	11	0				0	2	17	18			
	1-2	3	13	10	0				0	4	14	11			
	≥3	0	2	3	0				0	0	1	4			

Table 2. (Continued)

List	Variables	Study Group (n=130) Pre test				χ2	df.	P-Value	Study Group(n=130) Post test				χ2	df.	P-value
		L.L	L.H	H.L	H.H				L.L	L.H	HL.	H.H			
		n	n	n	n				n	n	n	n			
7	Age at first delivery					18.2	18	.438					8.27	12	.764
	Single	22	22	17	1				0	4	30	28			
	Nil	2	8	3	0				0	0	5	8			
	<20	3	2	3	0				0	0	5	3			
	20 -24	0	7	5	0				0	0	7	5			
	25- 29	3	15	10	0				0	2	11	15			
	30-34	0	2	2	0				0	1	2	1			
	≥35	0	2	1	0				0	0	2	1			
8	Infertility					13.6	6	.033					2.94	4	.567
	Single	22	22	17	1				0	4	30	28			
	Yes	0	6	2	0				0	0	2	6			
	No	8	30	22	0				0	3	30	27			
9	Type of Infertility					14.5	9	.103					3.65	6	.724
	Single	22	22	17	1				0	4	30	28			
	Nil	8	30	22	0				0	3	30	27			
	Primary	0	5	1	0				0	0	2	4			
	Secondary	0	1	1	0				0	0	0	2			
10	Contraceptive use					11.9	6	.064					1.25	4	.869
	Single	22	22	17	1				0	4	30	28			
	Yes	3	14	10	0				0	2	13	12			
	No	5	22	14	0				0	1	19	21			
11	Type of contraceptive use					16.0	9	.066					1.49	6	.960
	Single	22	22	17	1				0	4	30	28			
	Nil	5	22	14	0				0	1	19	21			
	Injective	0	0	2	0				0	0	1	1			
	Pills	3	14	8	0				0	2	12	11			

Table 2. (Continued)

List	Variables	Study Group (n=130) Pre test				$\chi 2$	df.	P-Value	Study Group(n=130) Post test				$\chi 2$	df.	P-Value
		L.L	L.H	H.L	H.H				L.L	L.H	H.L	H.H			
		n	n	n	n				n	n	n	n			
12	Duration of contraceptive use					16.6	9	.054					4.51	6	.607
	Single	22	22	17	1				0	4	30	28			
	Nil	5	22	14	0				0	1	19	21			
	>5	3	10	10	0				0	1	12	10			
	≥5	0	4	0	0				0	1	1	2			
13	Lactation					14.0	6	.029					1.77	4	.777
	Single	22	22	17	1				0	4	30	28			
	Yes	5	27	21	0				0	3	26	24			
	No	3	9	3	0				0	0	6	9			
14	Duration of lactation					20.8	12	.053					5.83	8	.666
	Single	22	22	17	1				0	4	30	28			
	Nil	3	9	3	0				0	0	6	9			
	<1	2	11	5	0				0	0	11	7			
	1 - 2	2	16	16	0				0	3	14	17			
	≥3	1	0	0	0				0	0	1	0			
15	Breast used for lactation					14.2	9	.115					1.91	6	.928
	Single	22	22	17	1				0	4	30	28			
	Nil	3	9	3	0				0	0	6	9			
	One	0	1	1	0				0	0	1	1			
	Both	5	26	20	0				0	3	25	23			

df= Degree of freedom; {High-High (HH)= above cut-off-point in pre and post-periods, (2.5-3)}; {High-Low (HL)= above-cut-off-point in pre and post-periods, (2-2.4)}; {Low-High (LH)= under cut-off-point in pre and post-periods, (1.5-1.9)}; {Low-Low (LL)= under cut-of-point in pre and post-periods, (1-1.4)}; P-value = Probability Level; $\chi 2$= Chi-square test score

This table reveals that there are significant differences between women's knowledge and infertility and lactation in pre-test, while there are no differences between women's knowledge in pre and post test in all other study variables regarding reproductive history.

Table 3. Association between women's knowledge regarding managing BSE and, their Family history for the study group in (pre–post) test

List	Variables	Study Group (n=130) Pre test				χ^2	df.	P-Value	Study Group (n=130) Post test				χ^2	df.	P-value
		L.L	L.H	H.L	H.H				L.L	L.H	H.L.	H.H			
		n	n	n	n				n	n	n	n			
1	Do you have a history of cancer in your family														
	Yes	7	24	14	1	4.67	3	.199	0	4	25	17	3.61	2	.164
	No	23	34	27	0				0	3	37	44			
2	If yes ,in which a site														
	Nil	23	34	27	0				0	3	37	44			
	Breast	2	14	9	0	15.1	9	.087	0	3	12	10	6.99	6	.322
	Uterus	1	5	2	0				0	0	4	4			
	Lung, brain, prostate, other	4	5	3	1				0	1	9	3			
3	The first degree of consanguinity														
	Nil	28	44	36	1				0	4	52	53			
	Mother	1	7	3	0	7.80	9	.554	0	1	5	5	10.2	6	.116
	Sister	0	6	2	0				0	1	4	3			
	Brother, father	1	1	0	0				0	1	1	0			
4	The second degree of consanguinity														
	Nil	23	46	31	0				0	5	45	50			
	Aunt	1	4	3	1	17.1	9	.047	0	0	7	2	5.78	6	.448
	Grandmother	4	5	2	0				0	1	4	6			
	Other	2	3	5	0				0	1	6	3			

df= Degree of freedom; {High-High (HH)= above cut-off-point in pre and post-periods, (2.5-3)}; {High-Low (HL)= above cut-off-point in pre and post-periods, (2-2.4)}; {Low-High (LH)= under cut-off-point in pre and post-periods, (1.5-1.9)}; {Low-Low (LL)= under cut-off-point in pre and post-periods, (1-1.4)}; P-value = Probability Level; χ2= Chi-square test score

This table indicates that there are significant differences between women's knowledge regarding family history and the second degree of consanguinity in pre-test. While, there are no significant difference in all other variables regarding family history in pre and post-test.

Table 4. Association between women's knowledge regarding managing BSE and, their Previous medical history for the study group in (pre–post) test

List	Variables	Study Group (n=130) Pre test				χ^2	Df	P-Value	Study Group (n=130) Post test				χ^2	Df.	P-value
		L.L	L.H	H.L	H.H				L.L	L.H	H.L	H.H			
		n	n	n	n				n	n	n	n			
1	Do you have previous breast problem														
	Yes	4	16	9	0	2.61	3	.455	0	2	12	15			
	No	26	42	32	1				0	5	50	46	.654	2	.721
2	Type of disease														
	Nil	26	42	32	1				0	5	50	46			
	Mass infection	0	5	2	0				0	0	1	6			
	Nipple discharge	3	0	1	0	19.8	15	.179	0	0	3	1	8.27	10	.602
	Pain in one breast	0	5	4	0				0	1	4	4			
	Or both	1	0	0	0				0	0	1	0			
	Other	0	6	2	0				0	1	3	4			
3	Which side of breasts effected														
	Nil	26	42	32	1				0	5	50	46			
	Right	0	5	3	0	5.26	9	.810	0	0	2	6	9.42	6	.151
	Lift	1	6	4	0				0	2	3	6			
	Other	3	5	2	0				0	0	7	3			
	How the effect treated														
	Nil	26	42	32	1				0	5	50	46			
	Surgery	0	5	0	0	8.96	9	.440	0	1	1	3	4.24	6	.644
	By drugs	2	9	7	0				0	1	9	8			
	Other	2	2	2	0				0	0	2	4			
5	If it is by surgery/type of surgery														
	Nil	30	53	41	1				0	6	61	58			
	Fibroid remove	0	4	0	0	6.45	6	.374	0	1	1	2	4.54	4	.337
	Total, partial of breast remove	0	1	0	0				0	0	0	1			
6	Do you use hormonal treatment (tab.inj)for other causes														
	Yes	2	5	2	0	.603	3	.896	0	0	5	4	.659	2	.719
	No	28	53	39	1				0	7	57	57			

P-value = ≤ 0.05 / {Low-Low: under cut-off-point in pre and post-periods, (1-1.4), Low-High: under cut-off- point in pre and post-periods, (1.5-1.9), High-Low: above cut-off-point in pre and post-periods, (2-2.4), High-High: above cut-off-point in pre and post-periods, (2.5-3)}

Table (4) illustrates that there are no significant differences between women's knowledge in pre and post-test regarding their previous medical history.

Discussion:

Part I: Association between women's knowledge regarding managing BSE and their characteristics:

The study results present relationships between socio-demographic variables and the levels of BSE knowledge. Chi-square test was used to evaluate the relationships between BSE practice and age, education, marital status, age at marriage, type of family, and smoking. The marital status was the only variable significantly associated with the level of BSE knowledge (p=.008) (Table 1.), the other variables like age; educational level; family type and smoking were not significantly associated with BSE knowledge.

Study findings were consistent with the findings of the present study. They reported that chi-square analysis is comparing age and education level to BSE frequency which showed no significant difference among groups [9]. While, it was indicated that the practice of BSE was significantly associated with age (p=0.011), the level of education (p<0.0001), personal history of breast problems (p<0.0001), and knowledge of how to examine the breast (p<0.0001) [10]. Also, it was reported that the ratio of knowledge of BSE was correlated with education and employment [11].

Correct practices of BSE were found to be correlated with employment status among study group. While, it was found to be correlated with education, employment, age and prosperity in control group [12]. Results indicated that a significant relation was found between higher levels in nursing college BSE practice, except for age. No significant relation was found between the socio-demographic factors and BSE Practice.

Higher knowledge levels were associated with older age, marriage and having children. Younger women need help for developing confidence in their BSE technique as well as accurate information to reduce their fear and improve their knowledge about BSE. Also, less educated women need information to reduce their fear and improve knowledge about BSE practice. According to logistic regression analysis, it was reported that the odds of having insufficient knowledge about breast cancer was (2.2) times higher in women who lived in extended families than ones in nuclear families, (5.2) times higher in women with no family history of breast cancer than in ones with family history [13].

Part II: Association between women's knowledge regarding managing BSE and reproductive history

The findings of the present study regarding the relationships between reproductive history variables and the levels of BSE knowledge in women were reported in this section. Chi-square test was used to evaluate the relationships between BSE practices with age at menarche, regularity of period, age at menopause, gravida, parity, abortion, age at first delivery, infertility, contraceptive use, (type and duration), lactation, (duration and breast used). Infertility and lactation were the only variables significantly associated with the level of BSE knowledge (p=0.033, p=0.029) (Table 2.).

The study results show increased knowledge from pre-test period to post-test period steadily. This means that women in study group who have been exposed to educational program had acquired better information that definitely contribute to better knowledge regarding managing BSE.

Part III: Association between women's knowledge regarding managing BSE and family history

The current study shows that there was a relationship between family history variables and the level of BSE knowledge. Chi-square test was used to evaluate the relationships between BSE practices with family history of cancer, site of cancer, degree of consanguinity. Second degree of consanguinity was the only variable significantly associated with the level of BSE knowledge (p=0.047), (Table 3). It was reported that knowledge and preventive attitudes, a history of breast diseases and a family history of breast cancer are significant determinants of adherence to BSE practice [(11)]. It was concluded that older women, but not younger women carry out BSE significantly more often when they have family history of cancer [(15)].

A woman, who perceives, that she is susceptible to breast cancer due to family history, especially first or second relative cancer and that breast cancer is a serious disease, would be more likely to perform BSE and improve their level of knowledge and practice BSE.

Part IV: Association between women's knowledge regarding managing BSE and previous medical history

The findings of the study showed regarding the relationship between previous medical history variables, and the level of BSE knowledge. Chi-square test was used to evaluate the relationship between BSE practice and previous breast problem, type of disease, side of breast affected, treatment used, type of surgery and use of hormonal treatment. No significant associations were found with regard to previous history variables (Table 4).

In a study conducted on (6380) female secondary school students in Jeddah, it was found that their knowledge of risk factors was very low, but students who had undergone mammography, or who had been exposed to breast surgery showed significantly higher knowledge levels and had opposite attitude toward learning BSE which is in contrast with the present study, but after the implementation of the educational program their information and knowledge improved with regard to control group and there were statistically significant differences between results of pre-post-test [(16)].

Conclusions

The present study has come out with the following conclusions.

There are significant associations between women's knowledge regarding managing BSE and their marital status, infertility status, lactation and second degree consanguinity. Also, the study concluded that the educational program of BSE is necessary for all women in different age groups, with different medical history, educational level, occupational status, and considered as an effective mean for the reinforcement of improvement of women's knowledge regarding managing BSE.

Recommendations:

The study recommends the following:

1. Necessary attention must be paid for the issue, especially at the primary health care centers.
2. Further study can be conducted with respect to the implementation of BSE program on women in different workplaces, universities, schools with further follow up for regular periodic management and referral for detected cases.
3. Implementation of proposed model of continuous medical education for women for BSE within the scope of their work.

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