

Effectiveness of the Jordan Breast-Cancer Community Health Program: a cross-sectional study

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Abstract: Breast cancer is the most common cancer among women in Jordan where most cases present at advanced stages. Major effort has been done in Jordan in response to the critical need to discover breast cancer in early stage and decrease mortality rates from breast cancer. An example of this effort is the initiation of the Jordanian Breast Cancer Program (JBCP) that aims at reducing morbidity and mortality from breast cancer by early detection through educational campaigns and outreach. **Aim:** to evaluate the effectiveness of the educational sessions conducted by the JBCP in the community health centers regarding breast cancer.

Methods: a cross-sectional design was used, sample included all women who attended the educational sessions on breast cancer in Al-karak MCH. Evaluation was done by assessing the knowledge of attendants before and after the health education session using the tool composed of questions related to the health education session's content. Data were analyzed collectively using /SPSS version 16. **Results:** the mean age of women was 33 years, 82% of them were between 20 to 39 years old, 90% were married, 24% had monthly income less than 300 JD, 52% had high level of education, and 56% were not employed. The results showed an improvement in the knowledge of women who attended the educational sessions about the breast cancer. A significant ($p < 0.05$) effect of the educational sessions conducted by JBCP in the MCH centers on the women's level of knowledge about breast cancer. These results are limited to women living in the southern region and cannot be generalized to other regions. **Conclusion:** The educational sessions about breast cancer that were conducted by the JBCP showed a significant impact in the form of a remarkable increase in the participants' level of knowledge. There is a need to increase the number the educational sessions to be conducted in different points of time in order to suit all women.

Keywords : breast cancer , Jordan, knowledge, education , evaluation, women.

Date of Submission: 14-08-2017

Date of acceptance: 13-09-2017

I. Introduction

Breast cancer is the top cancer in women worldwide and is increasing particularly in developing countries where the majority of cases are diagnosed in late stages^[1]. In United States, in 2007, an estimated 178.480 new cases of invasive breast cancer were diagnosed, as well as an estimated 62.030 additional cases in situ breast cancer^[2 2009]. Meanwhile in Europe, breast cancer is accounting for 429.900 cases (28.9% of total cases). Screening and prevention can reduce the incidence of cancer, otherwise, the number of new cases is projected to increase from 10 million 2000 to 15 million in 2020^[3 2007]. On the other hand, it is estimated that 69% of all breast cancer deaths occurs in developing countries due to late detection of the disease. There is need for early detection strategies particularly for low and middle income countries where the disease is diagnosed in late stages and resources are very limited^[4]. This paper provides an overview on breast cancer in Jordan.

Jordan is a small developing country, located in the Middle East, has a population of 6.3 million, with projected growth to 8.5 million by 2025. Life expectancy is 70 years for women and 66 years for men. The main causes of death are cardiovascular diseases and cancer. Latest Jordanian statistics showed that there are about 3.03 million women living in Jordan. Single women often ignore health issues such as breast examination due to fear of finding anything wrong before getting married. The mean age of marriage for women is 24 years; the average number of children per woman is 3.8, and about 56% of married women use family planning methods^[5].

Both cancer incidence and cancer prevalence have been increasing in the last few decades and cancer patterns are changing rapidly in Jordan. The emergence of cancer as an important cause of morbidity and mortality in Jordan in recent years has alerted the Ministry of Health to the urgent need for evolving suitable policies to curb this problem. At the national level, cancer treatment is provided through different public and private health institutions. A national body has been developed; the Jordan Breast Cancer Program, to address breast cancer and ensure early detection thus minimizing morbidity and mortality from the disease. Initiatives that focused on smoking cessation and palliative care has been under taken.

Breast cancer is the leading type of cancer and the most common malignancy afflicting Jordanian women. Nearly 800 new cases diagnosed every year, 26% diagnosed in the second stage. According to the latest

statistics from the Jordan National Cancer Registry ^[6], 925 females and 9 males were diagnosed with breast cancer in 2011, accounting for 19% of the total new cancer cases. Breast cancer ranked first among cancer in females, accounting for 37.8% of all cancers, and is the leading cause of cancer deaths among Jordanian women ^[6]. Previous studies conducted by the JNCR showed an increase in incidence of breast cancer in spite of increased awareness toward the disease ^[7]. Part of this increase can be attributed to the ageing of the population and the development in health, social, and technological aspects in Jordan that lead to better diagnosis in addition to obligatory notification of cancers to JNCR ^[7].

The World Health Organization reported that early detection is the cornerstone of breast cancer control in order to improve breast cancer outcome and survival. There are three universal methods for breast cancer screening mammography, breast self-examination and clinical breast examination, and there is great chance for early detection if the methods are utilized sufficiently among the women at different age groups ^[4]. WHO recommended awareness of early signs and symptoms, screening by breast self-examination and clinical breast examination in demonstration area as early detection strategies for developing countries while Mammography screening is recommended for countries with good health infrastructure ^[1].

The Breast cancer registry statistics and studies on breast cancer in Jordan show that there is poor screening associated with lack of awareness for the importance of early detection and treatment which negatively affect seeking these facilities for screening ^[8] ^[8],^[6],^[9]. Preventive behavior is essential for reducing cancer mortality. Knowledge is a necessary predisposing factor for behavioral change and also plays an important role in improvement of health seeking behavior. Knowledge might dramatically improve the attitude, disbelieve, and misconception and consequently enhance screening practice. To reduce the number of deaths from breast cancer, breast cancer awareness should be emphasized ^[10]. Beside this, several studies also shows that knowledgeable women are more likely to adhere to recommended breast cancer screening ^[11]. Although breast cancer is a major threat to Jordanian women, little is known about their knowledge and practices related to early detection of the disease. Health care professionals must understand what knowledge women have about breast cancer, their perceptions of the problem, and their feelings about breast cancer and early detection as well as the barriers to the practice of breast self-exam and other methods in order to increase the public awareness of the importance of breast cancer screening ^[8],^[12].

In a country with limited resources such as Jordan, breast self- examination is an ideal, safe, effective and cost free method which can be done by every woman with little training. Breast self -examination helps women to find their breast cancer early. Despite an increase in women literacy rate and knowledge about breast cancer, there are certain barriers to practice breast self- examination, like worry about breast cancer, embarrassment, lack of time, unpleasant of procedure, lack of privacy, fear of discovering a lump and unfavorable attitude towards breast self-examination ^[13].

Promotion of breast self- examination practice need, tailored health education and health promotion programs based on a specific understanding of women's health belief. Some studies indicated that the reason to attend or decline screening is personally rational and justifiable that suggests the need to understand screening behaviors among women by exploring the factors that may increase or decrease rates, that can direct national programs for breast cancer screening toward specific goals and objectives and assure best investment for money and resources to pick up better health outcome. Jordan, as a country with limited financial resources, need specific objectives for the national program to screen for breast cancer which include the three core functions of public health ; assessment, assurance and policy development ^[14].

A clinical breast exam (CBE) is an examination of the breasts by a health professional such as a doctor, nurse practitioner, nurse, or physician assistant. ^[15]. The (CBE) seeks to detect breast abnormalities or evaluate patient reports of symptoms to find palpable breast cancers at an earlier stage of progression. Treatment options for earlier-stage cancers are generally more numerous, include less toxic alternatives, and are usually more effective than treatments for later-stage cancers ^[16 2009].

A Mammogram is an x-ray picture of the breast. Mammograms can be used to check for breast cancer in women who have no signs or symptoms of the disease ^[17]. The key role in the early detection of breast cancer, and there is strong evidence that mammography screening has proven to be effective in reducing breast cancer mortality. Organized mammography screening programs have been established around the globe, mostly in developed countries. Screening is important for an early diagnosis; however, the follow-up of patients with breast cancer is of importance, too ^[18].

Major effort has been done in Jordan in response to the critical need to discover breast cancer in early stage and decrease mortality rates from breast cancer. An example of this effort the initiation of the Jordanian Breast Cancer Program ^[19] that aims at achieving two goals: first reducing morbidity and mortality from breast cancer by early detection and screening, second shifting the current state of diagnosis of breast cancer from its late stages (III- IV), to diagnosing breast cancer at its earlier stages (0-II) where the disease is most curable, survival rates are highest, and treatment costs are lowest ^[19].

Breast cancer creates an important health issue in Jordan for several reasons. First, the majority of breast cancer cases in the country are presented at advanced stages during which survival rates are low and the disease is less curable and only 30% of cases are diagnosed in early stages leading to high mortality rate. Second, Jordanian women are afflicted with breast cancer at a much younger age (median age 51) than women in western countries (median age 65), when they are still raising children , caring for their families, and contributing to the growth and development of the society. Third, Public awareness in Jordan regarding the direct connection of early detection of breast cancer and survival rates is minimal and inadequate. Fourth, treatment is less expensive and more successful when breast cancer is presented at its earlier stages than later stages. Fifth, incidence rates are increasing at 4% per year in a society in which 50% of the population is under the age of 18 years old, which is the suitable time for the issue of breast cancer awareness to be addressed^[19]. Based on the previous reviews, knowledge and practices regarding breast cancer and screening methods of the Jordanian health care professionals (Doctors, nurses, and students) need to be assessed, knowledge and practice regarding breast cancer and screening methods of the Jordanian women need to be assessed, and, awareness. This purpose of this research was to describe the effectiveness of the Jordan Breast Cancer Community Health Program.

II. Methods

Study design

This is a cross-sectional study evaluating the effectiveness of the educational sessions conducted by the JBCP in the community health centers. Evaluation is done by assessing the knowledge of attendants before and after the health education session using the tool composed of questions related to the health education session's content.

Sample

All of those who attended the educational sessions on breast cancer in Al-karak MCH center were included. Attendants who were not attended the full time of the session were excluded. A total of 50 women had fully attended the sessions and had completed the pre and post- test.

Instrument Development

Pre and post knowledge test was developed in the form of self-administered questionnaires. Content of the questionnaire were developed based on the guidelines given by the JBCP, the material of the educational sessions and, suggestions from experts in the area. Face and content validity of the questionnaire were assessed by 5 health experts (2 physicians and 3 nurses) in the area of breast cancer. The questionnaire has not been assessed for reliability. The pre and post questionnaire consists of 18 questions which test breast cancer knowledge on areas including risk factors, signs and symptoms, early detection and prevention by screening of breast cancer . Responses include 'True', 'Not sure', and 'False'. In addition the post-intervention questionnaire contains three main questions enquiring attendants' perception of the educational session on breast cancer and their suggestion for improvement as well.

Data Collection

Education session on breast cancer are routinely conducted in every MCH center once per month. Educational sessions that were conducted in Al karak MCH center in December, January, February and March were evaluated. Pre-test questionnaires were completed by participants before the beginning of the educational session. Post -test questionnaires were completed immediately after the end of the educational session.

Data Analysis

Each correct response was given 1 point and added to the total knowledge score. A wrong and 'not sure' response was given 0 points. The total knowledge score ranged from 0 to 18. The knowledge score is an ordinal variable thus indicating better breast cancer knowledge with higher scores.

Statistical Analysis

All data were entered in to SPSS. Data were analyzed collectively using /SPSS version ^[19] non-parametric test was used. Chi-Square (K^2) was used to test the difference between the pre and post breast cancer knowledge score.

III. Results

Results show that the mean age of women was 33 years, 82% of them were between 20 to 39 years old, 90% were married, 24% had monthly income less than 300 JD, 52% had high level of education, and 56% were not employed. The socio-demographic characteristics of participated women are shown in Table 1.

Table 1. Socio-demographic characteristics of study group

	Frequency N	Percentage %
Age Mean age: 33		
20-29	18	36
30-39	23	46
40-49	6	12
50-59	2	4
60- and more	1	2
Marital status		
Single	4	8
Married	45	90
Divorced	1	2
Monthly income (Jordanian Dinar) Mean= 340		
< than 200	6	12
200-299	6	12
300-399	17	34
≥ 400	4	8
Level of education		
< high school	5	10
High school	18	36
Diploma	8	16
Bachelor	17	34
Master	1	2
Employment		
Employed	22	44
Not employed	28	56

Results show that in general there was a significant ($p= 0.000$) effect of the educational sessions conducted by JBCP in the MCH centers on the women’s level of knowledge about breast cancer. Women’s level of knowledge before and after the lecture regarding each question of the instrument is shown in Table 2. The results show a significant difference ($p< 0.05$) on the majority of the questions ($n=11$ out of 18). A non-significant ($p> 0.05$) difference was found on question: Breast cancer could be cured, all abnormal nipple discharge regardless of the color, when women feel any abnormal changes in her breasts should go to see her doctor, any Lumps in breast is cancer, the exercise of breast self-examination monthly help in the early detection of breast cancer, all women are advised to take clinical breast examination from the age of 40-50 years and should be examined once every two years, even if the outcome of the previous X-ray image of the natural mammogram.

The relationship between women’s level of knowledge about breast cancer and their sociodemographic characteristic is shown in Table 3. Results also showed that the highest knowledge about breast cancer was found among women in the age group 30 to 39 (34%), married (66%), with monthly income ≥ 400 JD (26 %) and those with bachelor degree (24%).

Table 2. Difference between Pre and Post- test on women’s knowledge about breast cancer.

Questions	Pre-test				Post –test				<i>P value < 0.05</i>
	Correct		Incorrect		Correct		Incorrect		
	N	%	N	%	N	%	N	%	
1-Breast cancer could be cured.	41	82	9	18	46	92	4	8	0.059
2-The risk of breast cancer Increases with age progress.	33	66	17	34	48	96	2	4	0.000
3-The rate of breast cancer cure depends on the stage when detected.	45	90	5	10	50	100	0	0	0.025
4-Breastfeeding protects against breast cancer.	39	78	11	22	43	86	7	14	0.009
5-All lumps in the breast are cancer.	38	76	12	24	46	92	4	8	0.000
6-There is link between obesity and breast cancer.	14	28	36	72	38	76	12	24	0.000
7-All abnormal nipple discharge regardless of the color.	36	72	14	28	39	78	11	22	0.166
8-When women feel any abnormal changes in her breasts should go to see her doctor.	47	94	3	6	46	92	4	8	0.705
9-Any Lumps in breast is cancer.	44	88	6	12	46	92	4	8	0.157
10-The exercise of breast self-examination monthly help in the early detection of breast cancer.	48	96	2	4	49	98	1	2	0.30
11-During breast self-examination needs to be checked under the Axillary.	45	90	5	10	50	100	0	0	0.025
12-All women are advised to take clinical breast examination from the age of 40-50 years and should be examined once every two years, even if the outcome of the previous X-ray image of the natural mammogram.	39	78	11	22	40	80	10	20	0.564
13-After the age of 50 radiology mammogram should be	29	58	21	42	46	92	4	8	0.000

taken once a year even if the results were normal mammogram.									
14-Breast cancer is linked always with a sharp pain.	28	56	22	44	35	70	15	30	0.018
15-Breast cancer means a full mastectomy.	24	48	26	52	32	64	18	36	0.039
16-A clinical examination of the breast to the age of 20-39 should be taken every 3 years.	16	32	34	68	42	84	8	16	0.000
17-Men could have breast cancer.	22	44	28	56	43	86	7	14	0.000
18-Breast cancer is a division of breast tissue cells without being subject to the body's natural control systems.	25	50	25	50	45	90	5	10	0.000

Table 3. Percentage distribution of women’s sociodemographic characteristics and their knowledge level about breast cancer

	Knowledge level								
	Low		Moderate		High		Total		
	n	%	n	%	N	%	n	%	
Age Mean age: 33									
20-29	2	4	5	10	11	22	18	36	
30-39	2	4	4	8	17	34	23	46	
40-49	0	0	1	2	5	10	6	12	
50-59	0	0	0	0	2	4	2	4	
60- and more	0	0	0	0	1	2	1	2	
Marital status									
Single	1	2	1	2	2	4	4	8	
Married	3	6	9	18	33	66	45	90	
Divorced	0	0	0	0	1	2	1	2	
Monthly income (Jordanian Dinar) Mean= 340									
< than 200									
200-299	1	2	1	2	4	8	6	12	
300-399	0	0	1	2	5	10	6	12	
≥ 400)	2	4	6	12	9	18	17	34	
Missed	0	0	1	2	13	26	14	28	
	-	-	-	-	-	-	7	14	
Level of education									
< high school	0	0	0	0	5	10	5	10	
High school	3	6	4	8	11	22	18	36	
Diploma	0	0	0	0	8	16	8	16	
Bachelor	1	2	4	8	12	24	17	34	
Master	0	0	1	2	0	0	1	2	
Occupation									
Employed	0	0	4	8	18	36	22	44	
Not employed	4	8	6	12	18	36	28	56	

Regarding women’s responses on the last three questions in the post-test, results showed that the majority (86%) of women’s general impression about the educational session was very good, 90% said that the information provided in the educational session was sufficient. The main suggestion of women was to increase the number of the educational sessions during the month.

IV. Discussion

The present study aimed at evaluating the effectiveness of the educational sessions conducted by the JBCP in the community health centers. The study has a number of limitations. First it was limited by the lack of control group and the non- random sample. Second, only women who attended the educational sessions at the MCH center were included in the study who could be attended the sessions because they perceived that they were at higher risk. Third, the sample of the study was small which may limit the generalizability of the findings. The results of the present study showed a significant improvement in the level of the women’s knowledge about breast cancer after the conduction of the educational session. This finding is consistent with the findings of previous studies in Jordan [20-22]. For example Seif& Aziz, conducted a quasi- experimental study in 2000 with a sample included 122 of a group of working women to explore the “effect of breast self-examination training program on knowledge, attitude and practice of a group of working women in Medical and Nursing Department Faculties of Ain Shams University. They found that after the program implementation, a remarkable improvement in participants’ level of knowledge, attitude and practice was observed and the differences were statistically highly significant. The results of the present study showed that there was a relationship between level of knowledge about breast cancer and the sociodemographic characteristics of participated women. This findings are consistent with the findings of previous studies in Jordan [23], and India [24]. For example Ahujha &Chakrabarti conducted a cross sectional study in 2010 over a period of two months

on 80 women aged 40 years and above. They found that level of breast cancer knowledge was significantly associated with age (younger women more aware than older). Another study conducted among 1000 community-dwelling women from a semi-urban neighborhood in Nigeria to elicit socio demographic information and knowledge, attitude and practices of these women towards breast cancer.^[25] The study found that women with higher level of education and those employed in professional jobs were significantly more knowledgeable about breast cancer.

V. Conclusion

The educational sessions about breast cancer that were conducted by the JBCP showed a significant impact in the form of a remarkable increase in the participants' level of knowledge. There is a need to increase the number the educational sessions to be conducted in different points of time in order to suit all women.

Acknowledgements

We are highly indebted to the Ministry of Health, Mut'ah University /Faculty of Nursing for giving us the opportunity to conduct this research. Our grateful thanks are also extended to all staff of Mut'ah University and Al-karak MCH center for their kind co-operation and assistance.

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Seirin Mohammad Khresheh . "Effectiveness of the Jordan Breast-Cancer Community Health Program: a cross-Sectional study." *IOSR Journal of Nursing and Health Science (IOSR-JNHS)* , vol. 6, no. 5, 2017, pp. 24–29.