

Improving Quality of Life For Women With Arm Lymphoedema Post Mastectomy in Zagazig City

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Abstract: Breast cancer is the most common malignancy in women; it constitutes a major public health issue globally with over 1 million new cases diagnosed annually resulting in over 400,000 annual deaths. Arm lymphoedema is a common side effect that can begin during or after breast cancer treatment with surgery and radiation. Wide variation in the incidence of lymphoedema following breast cancer treatment was 38.3% to 83% of cases, **Aim of this study:** improve quality of life for women with lymphoedema through: assessment of the general knowledge of women with breast cancer about arm lymphoedema, planning, implementation, and evaluation the impact of health education intervention for women with lymphoedema post mastectomy and radiotherapy. **Subjects and methods:** A Quasi-experimental design was used in the intervention phase of the study. **Results:** This study revealed that, the majority of studied premenopausal group (95%) aged less than 45 years old. All of the studied subjects had inadequate knowledge about arm lymphoedema related to breast cancer, self-care practices and suffer from poor quality of life at preprogram which improved post program, there were statistically significant relations between the educational level, and residency of the studied group in relation to self-care practices and total quality of life pre and post program. **Conclusion:** all of the studied subjects of premenopausal group had inadequate knowledge and poor information about arm lymphoedema related to breast cancer, before program intervention, which improved post program to reach to all of them had adequate level knowledge, and good information about of the disease **Recommendations:** early identification and assessment of arm lymphoedema post-operative from physicians and nursing staff for early nursing intervention and teach women about, self-care practices such as nutrition, medications, practice exercises, hand and arm care to improve their quality of life.

Key words: Breast cancer, breast cancer treatment, premenopausal, arm lymphoedema, knowledge, self-care practices, improving, and quality of Life.

INTRODUCTION

Breast cancer (BC) is the most common malignancy and the second most common cause of cancer death after lung cancer in women worldwide. In Egypt, out of 9,587 female cancers cases registered in the last 10 years by the Alexandria Cancer Registry, 33.0% of them were breast cancer (Yager and Davidson 2006). In addition over 1 million (1,437,180) new cases diagnosed annually, resulting in 565,650 annual deaths from cancer are projected to occur in the United States in 2008 (Jemal *et al.*, 2008).

Vaidya *et al.*, (2007) reported that, modern treatment of breast cancer in most developed countries is based on a multimodality approach combining breast-conserving surgery, followed by 2 to 3 cycles of adjuvant chemotherapy, then radiation therapy is given used on the whole breast, and followed by another 2 to 3 cycles of adjuvant chemotherapy. Additionally adjuvant hormonal therapy is indicated only in the presence of hormone receptors on cancer tissue after chemotherapy is completed.

Furthermore, Brown (2005) mentioned that, secondary lymphoedema (LE) most frequently seen or developed after lymph node dissection, breast surgery and / or radiation therapy, additionally, Benoit *et al.*, (2007) reported that, the incidence of lymphoedema after treatment of breast cancer varies widely depending upon the extent of axillary surgery, and the use of radiotherapy. It is ranged from 38.3% to 83.0% within 1 year of treatment for breast cancer with breast-conserving surgery and radiation therapy.

As pointed out by Langer *et al.*, (2007), arm lymphoedema is defined as a swelling of the arm caused by an abnormal accumulation of protein lymph fluid in subcutaneous tissues that occurs as a result from interruption of the axillary lymphatic system in breast cancer patients. Moreover, Wilburn, *et al.*, (2007), stated that, causes and risk factors for developing secondary lymphoedema are lymph node dissection, lymph node biopsy, mastectomy or other surgery, radiation therapy, chemotherapy to the axillary node, excess weight, trauma or injury to the arm, infection following breast cancer surgery, other arm morbidities and having diabetes as co-morbidity.

According to Wilke *et al.*, (2006) arm lymphoedema can have a major impact on patient's life style and quality of life, since it is disfiguring often leads to psychological distress concerns about body image, causing difficulties in daily living and life style becoming severely limited, the loss of mobility, and total disability.

Francis *et al.*, (2008) emphasized that, the, prevention and treatment of arm lymphoedema are achieved through the used of combination of Complete Decongestive Therapy (CDT) which includes, skin care, manual lymphatic drainage (MLD), exercise therapy, and physical therapy, compression garments such as sleeves, or stocking, and maintain good nutrition to give an ideal weight has been shown to be effective in controlling and treatment of lymphoedema in the upper limb.

Fleissig *et al.*, (2006) mentioned that, the community health nurse has an important role in preventing, and control of arm lymphoedema in breast cancer survivors after mastectomy and / or axillary lymph node radiation therapy. She lists risk-reduction practices, and provides an educational program for patients with lymphoedema following treatment of breast cancer as well as following the guidelines, and recommendations in preventing, and assessment of problems to keep patients functioning optimally.

Significance of the Study:

Arm lymphoedema is one of the most frequently problem occurring in women with breast cancer who have been treated with surgery, radiation therapy or both. In addition, women with arm edema secondary to breast cancer therapy may suffer from psychological morbidity, functional and physical impairment, and diminished of their quality of life. To improve the quality of life for those women trough planning and implementing a program for providing them with information and care needed to deal with lymphoedema post mastectomy in Zagazig university hospitals.

Aim of this Study was to:

Improve the quality of life for women sustaining complications of breast cancer treatment related lymphoedema.

Specific Objectives:

1-Assess the general knowledge of women with breast cancer about lymphoedema, its nature, causes, risk factors, signs and symptoms, control and treatment. 2-Design an intervention health education program for evaluating the effectiveness of its intervention on improving quality of life for women with lymphoedema post mastectomy and radiotherapy related to breast cancer.

Research Hypothesis:

The intervention heath education program has a positive effect on women's health and quality of life with arm lymphoedema post mastectomy and radiotherapy related to breast cancer.

Subjects and Methods:

A-Technical Design:

Include description of the research design used, the study setting, the subjects, and the tools of data collection.

1-Research Design:

A Quasi-experimental design was used in the intervention phase of the study.

2-Settings:

The study was conducted in out patients' follow up clinics of Clinical Oncology Department at Zagazig University Hospitals (the only place for follow up and treatment the women post mastectomy).

3-Subjects:

The subjects for this study included all premenopausal women (40) treated from breast cancer, by surgery and radiotherapy, their age less than 45 years old were attended in out patients' follow up clinics and they had the following.

Inclusion Criteria:

Diagnosed as breast cancer. Undergoing breast mastectomy with axillary lymph nodes dissection and receiving post operative radiotherapy. Free from other chronic diseases such as hypertension and diabetes mellitus.

Ethical Considerations:

The agreement for participation of the subjects was taken verbally and written information before inclusion.

4-Tools of Data Collection:

Tool (I):

A structured interviewing questionnaire sheet was developed by the researcher composed of three parts:

Part 1:

Entail to socio-demographic characteristics of the studied subjects. This included age, educational level, residence, occupation...etc. For social class level, used modified of Fahmy and El-Sherbini scale (1983), the scoring system for socioeconomic level was calculated and the total score for questions is (26) degree. Score equal or more than 75% would be considered as a high social class, 50% to <75% would be considered as middle social class, and <50% would be considered as low social class.

Part 2:

It composed of questions to collect data about patients' knowledge about arm lymphoedema related to breast cancer (Pre-Post test format) and sources of patient's knowledge about the disease. the scores of items ranged as: the complete correct answer takes 2 degrees, the incomplete correct response takes 1 degree and the incorrect answer or don't know scored zero, the total score was (26). The patient's knowledge was considered satisfactory if the percent score was 60% or more and unsatisfactory if less than 60 %.

Part 3:

concerned with women's knowledge about Self-Care related to the affected arm with lymphoedema (Pre-Post test format), included: nutrition guidance, arm exercises, skin care ...etc. The total score was (49). The practice score of self- care was considered adequate if the percent score was 60% or more, while inadequate if less than 60 %.

Tool (II):

A Specific Quality of Life Scale in Upper Limb Lymphedema (ULL): The ULL-27 Scales (Pre-Post format).

(The ULL-27) contains 27 items divided into three dimensions: physical, psychological, and social (Launois *et al.*, 2002).

The scale was analyzed in order to select the women with poor quality of life. A final score is produced by normalizing it to a standard scale of (0-10) it is established that a low value is indicative of improvement and high health status. The total score was (114). High quality of life was (< 50%), Poor quality of life was (≥ 50%).

B-Operational Design:

Included preparation of tools phase, pilot study, data collection phase, and field work.

1-Preparation of Tools Phase and the Reliability & the Validity of Tools:

Based on review of literature, the researcher prepared the interview structured questionnaire format for knowledge and practice about arm lymphoedema, self-care program and guided by the specific quality of life scale in upper limb lymphoedema, (The ULL-27 questionnaire scale) of the 3 dimensions of the **ULL. 27** Scales were done previously with a significant level of P-value ($P < 0.05$) (Launois, *et al.*, 2002). and translated into Arabic, then reviewed by 5 experts, 2 from faculty of Medicine (Clinical Oncology Department) and 3 from faculty of Nursing (Community Health Nursing Department) and prepared the hand-book for patients, which covered all items related to arm lymphoedema post mastectomy and radiotherapy for breast cancer women and its management and how to prevent and control this disease, the same experts revised them and all recommended modifications were done.

2- Pilot Study:

A pilot study was carried out on 10 % of the studied subjects (premenopausal women) having breast cancer with axillary lymph node dissection and receiving post operative radiotherapy and develop lymphoedema or reported. The purposes of the pilot were to test the questions for any and to assess the practicability and feasibility of using questionnaire sheet for patients, helped the researcher to determine the time needed for filling the forms.

3- Data Collection Procedure:

The study was done during the period from December 2008 to November 2009, The questionnaire sheets filled by the researcher by asking patients, the average time spent with each participant to fill out the form 25-35 minutes. Women's knowledge about Self-Care related to the affected arm with lymphoedema (Pre-Post test format), and A Specific Quality of Life Scale in Upper Limb Lymphedema: The ULL-27 Scales (Pre-Post format).

C-Administrative Design:

Permissions for data collection and implementation of the educational program in the out patients' clinics of Clinical Oncology Department at Zagazig University Hospitals were obtained from the hospital administration.

4- Field work:-

Implementation of the program for improving the quality of life for women with lymphoedema post mastectomy and radiotherapy related to breast cancer was done through educational program. The researcher set schedule of appointments to meet the patients on a certain time each week after divided them into 4 groups. The numbers of sessions were given (9) sessions, each session ranged from 45-50 minutes. And different teaching methods with teaching material methods were used in health education sessions such as, lectures, discussions, demonstration and prepared booklets with handouts. Then evaluation was done through post test was administered immediately after 3 months of implementation of the program for showing increased awareness and knowledge about arm lymphoedema

IV- Statistical Analysis:

statistical analysis was done using SPSS 14.0 Statistical Software Package. Data were presented using descriptive statistical measures, in the form of frequency and percentages for qualitative variables, and mean and Standard deviations for quantitative variables. For multiple group comparisons of quantitative data, Z-Wilcoxon Signed Ranks Test, Chi-Square (χ^2) and Fisher Exact tests were used, and t-test and Pearson Correlation analysis was used for the assessment of the inter-relationships among quantitative variables, and Spearman rank Correlation for ranked ones, statistical significant was considered at P-value <0.05.

Results:

Table (1): shows the socio-demographic characteristics of the studied sample, the majority of premenopausal group (95.0%) their age less than 45 years old. The mean age's premenopausal group was 39.6 ± 3.6 years. Also 42.5 % of the premenopausal group had secondary school, and more than half of them (52.5%) were from urban area, the majority of premenopausal (95.0%) were married and all of the studied sample were house wives. The table also clarifies that more than two thirds of premenopausal (65.0%) women reported that they had insufficient monthly income, in addition most of them (72.5%) were haven't health insurance and paid the fees for their treatment, and more than three quarter (77.5%) of premenopausal group belonged to low social class.

Table 2: shows the studied group with arm lymphoedema according to their total adequate level of knowledge about arm lymphoedema throughout the program. It was evident from the table, that none of the studied group knows the definition, signs and symptoms of arm lymphoedema before implementing the program, while only 5.0%, 12.5% and 17.5 % had adequate level of knowledge about types , causes and risk factors and treatment for arm lymphoedema respectively. While after implementing the program, the acquisition of adequate level of knowledge was improved and increased significantly among the studied subjects, it ranged from 52.5% to 100.0% . Generally, the total level of knowledge scores about arm lymphoedema was inadequate among all of the studied subjects before program implementation. While post program their knowledge improved, among all of the studied premenopausal group and got adequate level of knowledge scores with highly statistical significant difference relations between pre-post test of the studied group ($P < 0.001$) for all of the above items.

Figure 2: illustrated that, the main sources of knowledge about the disease of arm lymphoedema were physicians and radiologists among more than half (55.0 %) of the premenopausal patients, on the other hand, 45.0% reported the nursing staff.

Table 3: demonstrates the studied patient's adequate level of knowledge about self –care practice for arm lymphoedema throughout the program, it reveals that none of the studied premenopausal group had adequate level of self-care practice regarding nutrition while only 15.0% , 12.5% , and 35.0% of them followed adequate self-care practice regarding physical arm exercises , skin care, hand and arm care, and followed a daily self-care program for arm lymphoedema before program intervention respectively. But after program intervention the acquisition of adequate level of knowledge and following adequate self care practice for arm lymphoedema was improved and increased significantly among the studied subjects, it ranged from 92.5% to 100.0%. In general none of the premenopausal group had adequate knowledge about self care practice before program, but post

program, the majority (92.5%) of them reported adequate level of knowledge about self care practice, The difference between pre-post program for the premenopausal group were statistically highly significant (P<0.001) for all of the above items.

Table 1: Distribution of the Studied Sample According to Socio-Demographic Characteristics (N = 40).

Items	Premenopausal (N=40)	
	No	%
Age (years) :		
35-	2	5.0
45-	38	95.0
Range	16.0	
Mean X ± SD	39.6 ± 3.6	
Education :		
Illiterate	12	30.0
Read & write	3	7.5
Primary education	8	20.0
Secondary education	17	42.5
Residence :		
Rural	19	47.5
Urban	21	52.5
Marital status:		
Married	38	95.0
Widow	2	5.0
Occupation :		
House wife	40	100.0
Monthly income:		
Sufficient	14	35.0
Insufficient	26	65.0
Health insurance :		
Yes	11	27.5
No	29	72.5
Social class:		
Middle	9	22.5
Low	31	77.5

Table 2: The Studied Sample According to Their Total Level of Knowledge Regarding Arm Lymphoedema Characteristics throughout the Program (N = 40).

Items of Knowledge	Premenopausal (N = 40)			
	Pre- test n = 40		Post -test n = 40	
	No	%	No	%
1- Definition :				
Adequate	0	0.0	36	90.0
Inadequate	40	100.0	4	10.0
	Z= 6.00 P = 0.000**			
2- Types				
Adequate	2	5.0	36	90.0
Inadequate	38	95.0	4	10.0
	Z= 5.83 P = 0.000**			
3- Causes & Risk factors :				
Adequate	5	12.5	40	100.0
Inadequate	35	87.5	0	0.0
	Z= 5.91 P = 0.000**			
4- Signs and Symptoms:				
Adequate	0	0.0	21	52.5
Inadequate	40	100.0	19	47.5
	Z= 4.58 P = 0.000**			
5- Treatment :				
Adequate	7	17.5	32	80.0
Inadequate	33	82.5	8	20.0
	Z= 5.00 P = 0.000**			
Total level of knowledge :				
Adequate ≥ 60 %	0	0.0	40	100.0
Inadequate < 60 %	40	100.0	0	0.0
	Z= 6.32 P = 0.000**			

Z- Wilcoxon Signed Ranks Test.*Significant(P<0.05).**Highly significant(P < 0.001).

Figure 4: illustrated that, the minority of the studied subjects (25.0%) reported they practice daily self-care preprogram, while after program (85.0%) follow up daily care.

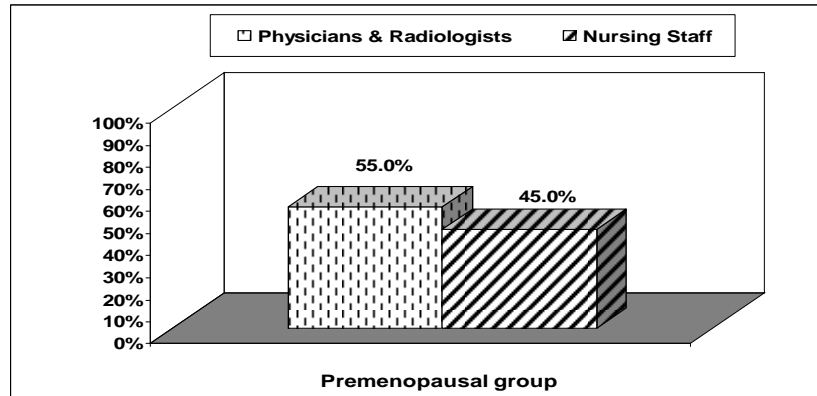


Fig. 2: Sources of Knowledge about Arm Lymphoedema among both Studied Subjects.

Table 3: The Studied Sample According to Their Total Level of Knowledge Regarding Self-Care Practice for Arm Lymphoedema Throughout The Program (N = 40).

Self care total level of Knowledge	Premenopausal (N = 40)			
	Pre -test		Post -test	
	No	%	No	%
1- Nutrition :				
Adequate	0	0.0	37	92.5
Inadequate	40	100.0	3	7.5
Z= 6.08 P = 0.000**				
2- Arm Exercises :				
Adequate	6	15.0	39	97.5
Inadequate	34	85.0	1	2.5
Z= 5.74 P = 0.000**				
3- Skin care, Hand and Arm Care:				
Adequate	5	12.5	36	90.0
Inadequate	35	87.5	4	10.0
Z= 5.83 P = 0.000**				
4- Following a daily self -care program for Arm lymphoedema:				
Adequate	14	35.0	40	100.0
Inadequate	26	65.0	0	0.0
Z= 5.09 P = 0.000**				
Total level of knowledge about self-care :				
Adequate ≥ 60 %	0	0.0	37	92.5
Inadequate < 60 %	40	100.0	3	7.5
Z= 6.32 P = 0.000**				

Z- Wilcoxon Signed Ranks Test.*Significant (P<0.05).**Highly significant (P < 0.001).

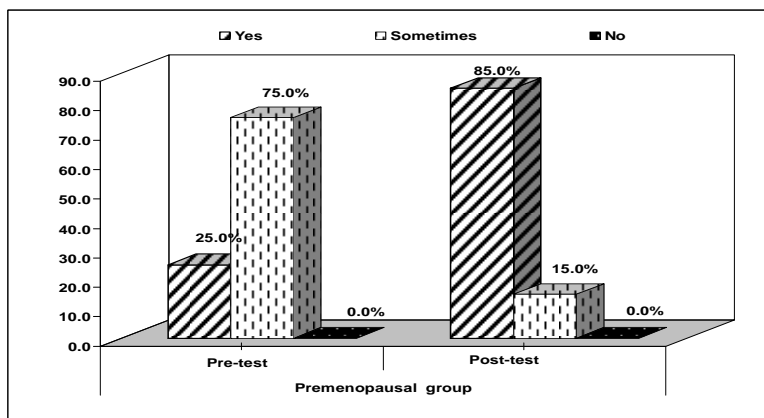


Fig. 4: Self- Care Practice Effect on Improvement of Arm Lymphoedema among the Studied Subjects throughout the Program.

According to table 4: the results indicates the total quality of life dimensions scores for the studied subjects related to arm lymphoedema throughout the program, it was noticed that none of the studied premenopausal group reported high quality of life level at pre program regarding the effects of arm lymphoedema on physical and pain symptoms dimension sum scale, and psychological dimension. On the other hand the majority them reported (95.0%) had high quality of life level related to social interaction dimension sum scale. While at post program the high level of quality of life was increased and improved significantly among the studied subjects, it ranged from 10.0% to 100.0%. In general all of the studied subjects got poor total quality of life dimensions scores at pre program, while post program, their total quality of life improved and reach to 82.5% with highly statistical significant difference between pre-post test among the studied women ($P < 0.001$) for the rest of above items except the social interaction dimension ($P = 0.15$).

Table 4: The Studied Sample According to Their Total Quality Life Dimensions Scores for Arm Lymphoedema throughout the Program (N = 40).

Quality of Life Dimensions.	Premenopausal (N = 40)			
	Pre- test		Post -test	
	No	%	No	%
1- Effects of Arm lymphoedema and types of effects on quality of life :				
High quality of life	0	0.0	4	10.0
Poor quality of life	40	100.0	36	90.0
	Z= 5.74		P = 0.000**	
2- Physical sum scale :				
High quality of life	0	0.0	38	95.0
Poor quality of life	40	100.0	2	5.0
	Z= 6.16		P = 0.000**	
3- Social interaction sum scale:				
High quality of life	38	95.0	40	100.0
Poor quality of life	2	5.0	0	0.0
	Z= 1.41		P = 0.15	
4- Psychological sum scale :				
High quality of life	0	0.0	16	40.0
Poor quality of life	40	100.0	24	60.0
	Z= 4.00		P = 0.000**	
Total quality of life Scores :				
High quality of life < 50 %	0	0.0	33	82.5
Poor quality of life ≥ 50 %	40	100.0	7	17.5
	Z= 6.32		P = 0.000**	

Z- Wilcoxon Signed Ranks Test.*Significant ($P < 0.05$).**Highly significant ($P < 0.001$).

Table 5: reveals, the relation between premenopausal's total level adequacy of knowledge about arm lymphoedema and their socio-demographic data, it was noticed from the table, that all of the premenopausal group their knowledge improved post program and had adequate level of knowledge about arm lymphoedema characteristics, and this was more evident among age group less than 40 years old (42.5%), their educational level was secondary school (45.9%), also from urban area (52.5%) and belonged to low social class (77.5%).

Table 5: Relation between Patients' Post Program Total Adequate Level of Knowledge about Arm Lymphoedema and their Socio-Demographic Characteristics (N=40).

Adequate level of Knowledge Socio-demographic characteristics	Adequate Level of Knowledge		X ² & P-value
	Premenopausal (N=40)		
	No	%	
Age (years):			
< 40	17	42.5	(a)
50-	23	57.5	
Education :			
Illiterate	12	30.0	(a)
Read & write	3	7.5	
Primary education	8	20.0	
Secondary education	17	42.5	
Residence :			
Rural	19	47.5	(a)
Urban	21	52.5	
Social class :			
Middle	9	22.5	(a)
Low	31	77.5	

Notice: (a) It means No statistics are computed because the total level of knowledge among the premenopausal group is a constant.

Table 6: shows the relation between patients' post program self-care practice level related to arm lymphoedema and their socio demographic characteristics, As displayed from the table the total level of adequacy self-care practice for arm lymphoedema was improved after implementing the program at the among group their age less than 40 years old (45.8%) had secondary education (45.9%), came from urban area (54.1%) and belonged to low social class (78.4%). The results also indicated that there were highly statistical significant difference between premenopausal's adequate level of self –care practice for arm lymphoedema and their educational level and their residence (P<0.001).

Table 6: Relation between Patients' Post Program Total Level of Self-Care Practice for Arm Lymphoedema and Their Socio-demographic Characteristics (N = 40).

Adequate level of self-ca	Adequate Level of Self-Care Practice				X ² & P-value
	Premenopausal (N=40)				
	Adequate level ≥ 60%		Inadequate level < 60%		
	No	%	No	%	
Age (years):					
< 40	16	43.2	0	0.0	Fisher
50-	21	56.8	3	100.0	0.47
Education :					
Illiterate	10	27.0	2	66.7	6.27
Read & write	2	5.4	1	33.3	0.000**
Primary education	8	21.6	0	0.0	
Secondary education	17	45.9	0	0.0	
Residence :					
Rural	17	45.9	2	66.7	Fisher
Urban	20	54.1	1	33.3	0.002**
Social class :					
Middle	8	21.6	1	33.3	Fisher
Low	29	78.4	2	66.7	0.22

* Significant (P<0.05). ** Highly significant (P < 0.001).

According to table 7: the results illustrated the relation between patients' post program total quality of life dimensions scores and their socio-demographic characteristics. The table pointed out that, the premenopausal group had high quality of life scores post program were aged less than 40 years old (36.4%) and had secondary education level (48.5%), came from urban area (54.5%) and belonged to low social class (78.9%). The results also indicates that there were a highly statistical significant relation between the premenopausal's quality of life dimensions scores related to arm lymphoedema and their educational level, and also their residence (P<0.05, P<0.001, respectively).

Table 8: clarifies correlation coefficient between total quality of life scores among the studied subjects and their total knowledge and total self-care practice about arm lymphoedema throughout the program at post program, there were statistical significant positive correlation between the studied subjects ' total knowledge and total self-care practice scores and their total quality of life scores. (r = 0.97, P< 0.001 and r = 0.89, P< 0.05 respectively).

Table 7: Relation between Patients' Post Program Total Quality of Life Dimensions Scores Related to Arm Lymphoedema and Their Socio-demographic Characteristics (N = 40).

Quality of life scores	Total Quality of Life Scores				X ² & P-value
	Premenopausal (N=40)				
	High Q of Life < 50%		Poor Q of Life ≥ 50%		
	No	%	No	%	
Age (years):					
< 40	12	36.4	5	71.4	Fisher
50-	21	63.6	2	28.6	0.25
Education:					
Illiterate	7	21.2	5	71.4	3.11
Read & write	2	6.1	1	14.3	0.03*
Primary education	8	24.2	0	0.0	
Secondary education	16	48.5	1	14.3	
Residence :					
Rural	15	45.5	4	57.1	Fisher
Urban	18	54.5	3	42.9	0.004**
Social class :					
Middle	7	21.2	2	28.6	Fisher
Low	26	78.9	5	71.4	0.36

* Significant (P<0.05). ** Highly significant (P < 0.001).

Table 8: Correlation Coefficient between Studied Subjects' Total Quality of Life Score and their Knowledge and Self-Care Practice about Arm Lymphoedema throughout the Program (N=40):

Total quality of life scores	Quality of Life Scores			
	Premenopausal (N=40)			
	Pre- test		Post -test	
	r	P	r	P
Knowledge & self-care practice				
Total knowledge scores.	0.71	0.06	0.97	0.005**
Total self-care practice scores.	0.27	0.08	0.89	0.02*

* Significant (P<0.05). ** Highly significant (P < 0.001).

Table 9: demonstrates correlation coefficient between studied subjects' total self-care practice scores and their total level of knowledge about arm lymphoedema throughout the program ,the results indicates that, the self-care practice had a statistical significant positive correlation with knowledge throughout the program phases among the studied premenopausal group as well as increase, in their knowledge about arm lymphoedema, their self-care practice improved and their quality of life improved (r = 0.33, P< 0.05, r = 0.45, P< 0.001).

Table 9: Correlation Coefficient between Studied Patients' Total Self-Care Practice Scores and their Total Level of Knowledge about Arm Lymphoedema throughout the Program (N = 80).

Total Self-care practice	Total Self-Care Practice Scores			
	Premenopausal (N=40)			
	Pre- test		Post -test	
	r	P	r	P
Total level of knowledge scores				
Total knowledge scores	0.33	0.03*	0.45	0.007**

* Significant (P<0.05). ** Highly significant (P < 0.001).

Discussion:

Breast cancer is a frequently occurring cancer amongst women with an annual age standardized incidence of between 63 and 65 cases per 100.000 populations. One element of the morbidity associated frequently with breast cancer and its treatment is secondary upper limb lymphoedema (ULE) (Hanines and Sinnamon, 2008). In addition arm lymphoedema has a detrimental impact on the patient's quality of life which causes a wide range of physical and psychological difficulties, including depression, embarrassment, poor body image and impaired physical mobility and pain with limb movement (Meeske *et al.*, 2009).

The current study revealed that, the majority (95.0%) of premenopausal group aged less than 45 years old, with mean age was 39.6 ± 3.6 years, this finding was goes in the same line with Chu *et al.*, (2008) and Beaulac *et al.*, (2008) who discovered that, breast cancer can occur at any age-adjusted breast cancer mortality and morbidity rate between females similar among this group less than 40 years of age, with increase of the incidence rates of upper arm lymphoedema that would be expected be seen in all ages as well as a common sequalea after breast cancer surgery and /or radiotherapy (table 1).

The results showed that, most of the studied premenopausal group belonged to low social class. These finding were in agreement with Dawn and Rose (2007). who found that, patients with arm lymphoedema post breast cancer treatment, their treatment approaches were affected by their low socioeconomic factors, in addition to patients with low income status and low social class level are especially vulnerable risk to no improve in their health status, and not being optimally receiving care for improving their general quality of life which affected by their disease condition.

The present study included, none of the studied premenopausal group know the name of their disease or definition of it, also they didn't know the types of arm lymphoedema in addition to the minority of the studied sample know the causes and risk factors of arm lymphoedema during the pre program. This could be explained by the fact that those patients didn't receive enough information from health care providers or the health professionals about the condition of arm lymphoedema post breast cancer treatment. These results were in accordance with Anderson *et al.*, (2006) who explained that, arm lymphoedema has received little attention even from heath care providers as well as clinicians caring for breast cancer survivors; beside to they had limited knowledge of that condition. After implementing the health education intervention, there was a significant increase and improve in women's knowledge regarding arm lymphoedema characteristics and its consequences (table 2).

The findings alsoshowed that, none of the studied sample know signs and symptoms of arm lymphoedema and the minority (17.5%) of the studied group know prevention and treatment methods for arm lymphoedema at pre program, these findings goes in the same line with, Bani *et al.*, (2007), who pointed out, that , information

and knowledge regarding the assessment and treatment of breast-cancer-related lymphoedema is lacking, and the early detection and treatment of lymphoedema is of the utmost importance.

The current study also revealed that, after implementing of health education intervention, there were a significant improvement and increase in studied women's knowledge among all of them about arm lymphoedema post mastectomy and radiation therapy, its effects and prevention and treatment strategies, these findings were supported by, Petrek *et al.*, (2007) and Bertz *et al.*, (2007) who emphasized that, the early detection and treatment of upper arm lymphoedema after undergoing surgery of breast or radiation therapy, and when the diagnosis of lymphoedema is confirmed, the patients should quickly begin a treatment education program, regardless to the stage or severity of the disease with providing patients with a appropriate information and education about arm lymphoedema among breast cancer survivors for 1-3 months after the end of treatment at a visit in the out patient department, resulting in increase of their knowledge after intervention by an clinicians trained as lymphoedema therapists, interested nurses, physicians and other health care professionals.

Also, our current study showed that, more than half (55.0%) of the studied premenopausal women obtain their information about arm lymphoedema from doctors, physicians and radiologists, in contrast to this findings, Lemon *et al.*, (2006) and Irwin *et al.*, (2007) found that, when patients with lymphoedema wanted more information on their condition related to lymphoedema, they didn't considers physicians or other health care providers to be primary resources, additionally, survivors and cancer care provides have not been well informed about upper extremity lymphoedema symptoms, or management.

The present study revealed that, none of the studied premenopausal group had adequate level of self-care practice regarding nutrition, the minority of them followed adequate self-care practice regarding physical arm exercises and skin care, hand and arm care (15.0% ,12.5% respectively) for arm lymphoedema before program implementation, this was evident that lack of a awareness regarding post mastectomy exercises and physical activities, the benefits of physical exercises and physiotherapy for arm and shoulder muscles, in accordance to these results, Karadibark *et al.*, (2008) Na *et al.*, (2008) and Stout *et al.*, (2008) found that, the majority of the patients suffered from arm lymphoedema did not follow the dietetic recommendations for their disease and the minority of them practice physical arm exercises and didn't report the types of arm exercises correctly ,and also they didn't practice skin care, and didn't follow special instructions regarding shoulder, arm, and hand care at the affected limb at the side of operation pre intervention.

while after participation in education sessions, the current findings showed that, the majority of the studied subjects, their practice related to nutritional recommendations for their condition improved and increases and followed the appropriate dietary regimen, and also their was a significant improvement and increased of self practice related to performed physical exercises, and the majority of the studied group performed arm exercises, and they have adequate knowledge about exercises, its importance, types and their practices regarding skin care and its methods, hand arm care with its methods, were improved adequately. On the agreement with the current findings, Sung (2006) Todd *et al.*, (2008) Stout *et al.*, (2008) Shamely *et al.*, (2009) and Barharic *et al.*, (2010) pointed out that, patients with arm lymphoedema after msatectomy, when they providing information and recommendations about the management of lymphoedema, their dietary practice increased and found that, eating enough dietary supplementation is very important to good health, moreover helps the body to manage the stressors that caused by arm lymphoedema, the most substantial lymphoedema reduction occurs within 3 months of intensive supervised exercise programs for patients with lymphoedema and with increasing of details about exercise's benefits, types, methods and its frequency. In addition to the majority of patients with secondary lymphoedema, showed improved in their practices in relation to follow specific recommendations about self-care including skin, care, hand and arm precautions.

The current results illustrated also in table (3) that, about one thirds (35.0%) of premenopausal group were practice and follow a routine daily self-care program, at preprogram. These findings were in agreement with Rinder and Dietrich, (2008) who reported that, a challenging for women with arm lymphoedema who had not received such information adequately about their condition pretreatment lead to knowledge deficit on following maintenance self-care program for caring their disease, however such considerations and intervention should be reviewed by surgeons and physicians who done the breast surgery. After implementing the health education program, the current study demonstrated that, there were a statistical significant increase and improved of patients' self-practice, and its methods and following daily self-care program for arm lymphoedema among the all of the studied group, the similar findings were found by Karki *et al.*, (2009) and National Lymphoedema Network (NLN), (2010) who observed that, and stressed on effective strategies to address lymphoedema included early identification of at risk patients and providing the needed information about upper limb lymphoedema (ULL) the effects of current treatment practices in relation to lymphoedema in breast cancer patients on following lymphoedema therapy practices over 3 months and 6-12 months follow up after intervention revealed a significant improvement in over all health among such patients.

The current study clarified also in figure (4) that, the minority of the studied groups showed improvement of arm lymphoedema after practice of self-care program at preprogram, while after giving health education intervention, their conditions reflected a significant improvement of arm lymphoedema after self-care practices

among the majority of premenopausal group. These results were in agreement with Park *et al.*, (2008) who discovered that, because of lack of knowledge among breast cancer survivors concerning the upper extremity lymphoedema, and its methods of self-care management, those patients showed negative impact in the health – related quality of life in general, so, that patients can take to their oncologists, and other health care providers to inform them about the appropriate self-care treatment for improving their health in general and reflected a significant improvement in quality of life (QOL) of patients with lymphoedema

The current study findings showed at pre- intervention assessment that, the studied group had poor health status and high negative impact of arm lymphoedema on their quality of life dimensions to poor level and the types of that effects were observed more as both physical and pain symptoms with also psychological effects at pre program and none of them had high level of quality of life in physical & pain symptoms sum scale and denotes a great impact of psychological distress and emotional state at pre intervention ,this could be attributed to lack and poor information provided to patients to examine how lymphoedema impacts on patients , also, all of the studied subjects were house wives and unemployed, and were fully responsible for maintenance of the household tasks which may affect on their health status because of more movements of the affected arm in addition to the fact of the burden of breast cancer surgery effects with also developing of arm lymphoedema post cancer treatment, all of those factors cause a great psychological morbidities and emotional distress impact on those women and lower their quality of life in general .

These results were in accordance with Engel *et al.*, (2007), Poole and Fallowfield, (2007) and Jager, *et al.*, (2008) who found and discovered that, all women with lymphoedema following breast cancer treatment were restored to poor levels of health status and scored poorly in general quality of life dimensions and had a sub-optimal HRQOL as well as reductions in arm functions physically, and psychological functioning such as restriction in activities of daily living (ADL) work and self-care activates in addition to the majority of patients with lymphoedema secondary to breast cancer treatment experience a wide range of psychological distress at pre intervention phase.

The current study indicated that, after participating of the studied premenopausal women in education program for arm lymphoedema the majority (95.0%) of the studied group demonstrated a significant improvement in patients' total quality of life related to physical domain which changed from poor level to high level, and their psychological morbidities as generally decreased significantly, and their psychological status and improved among nearly more than one third (40.0%) of the studied group to became highly quality of life, in the same line with the present results, Sugden, *et al.*, (2007) , Gordon, *et al.*, (2007), and Lee, *et al.*, (2008) found and prescribed the significant improvement in the HRQOL among the majority of women with self –reported lymphoedema after treatments in relation to physical function in aspects of pain reducing measures, shoulder and arm movements, physical daily activities after enrolling in a health education intervention at 1 month, 3 months from baseline measurements. In addition to a great changes in the psychological health from negative health response to a positive health response among many of participants groups of breast cancer survivors with lymphoedema from their baseline assessment at 1 month, 3 months post diagnosis and consequently increase in their HRQOL scores as well as improving in psychological and social status and emotional well-being, after intervention program.

The current findings were showed high quality of life scores among the majority (95.0%) of the studied subjects of social interaction domain of quality of life at pre intervention, and after implementing the education program, all of the studied group their scores increased moreover and became highly improvements of quality of life, this could be attributed to that, direct effective social support and cognitive behavioral adaptation techniques to that disease which conducted and provided from specialized health care providers as well as nursing staff at breast cancer units appeared to play an important role in promote successful coping to such disease among those subjects quality of life as explained and recommended from the American Cancer Society (ACS), (2009), similar concluded findings from a study by Oldervoll *et al.*, (2007) who investigated the changes of quality of life score among the participants of breast cancer patients with lymphoedema following CDT (complete decongestive therapy) program and found a significant increasing and improvements in QOL scores in relation to social functioning and well being after 1 month, 3 month form baseline scores.

The current study revealed in table (5) that, all of the premenopausal group their knowledge improved post program and had adequate level of knowledge about arm lymphoedema characteristics in relation to their sociodemographic data specially among patients aged less than 50 years old with educational level at secondary school, from urban area belonged to low social class. The results pointed out that, no statistically significant relation between the studied group and their knowledge adequacy in relation to their sociodemographic data. Similarly, studies carried out by Thomas-Maclean, *et al.*, (2008) Dayes, *et al.*, (2008) and by Basen-Engquist, *et al.*, (2008) who found that, insignificant relation between young breast cancer survivors women with upper limb lymphoedema after breast cancer treatment and their adequacy knowledge and their sociodemographic characteristics, as age, educational level, residency, and economic status .

The current results in table (6) displayed that, the total level of self- care practice for arm lymphoedema improved specially patients aged less than 40 years old, had secondary school education, came from urban area

and belonged to low social class, and their inadequate level of self-care practice was presented among the same age group, illiterate, come from rural area and belonged to the same social class level. The findings were found a highly statistical significant relation between their educational level and residence and their adequacy level of self-care practice for arm lymphoedema, these findings were in accordance with Ohlin, *et al.*, (2006) and Fu *et al.*, (2009) who found that, a statistical significant relation between the young breast cancer survivors women's educational level come from urban areas and their level of self-care approaches therapies, since the more education with younger patients increase the awareness and motivation of them to practice the appropriate effective self-care management of arm lymphoedema to prevent more physical morbidities and disabilities related to their quality of life.

The current results, in table (7) illustrated that, there was a positive statistical significant relation between the premenopausal's quality of life domains scores regarding arm lymphoedema and their educational level, residence and presented that, the high quality of life scores were presented among patients their age group less than 40 years old, having secondary education, come from urban area and belonged to low social class, on the other hand the poor quality of life scores were found in the same group who aged less than 40 years old, illiterate, come from rural area and also belonged to low social class, these findings were in agreement with Moyer, (2006) and the National Cancer Institute (NCI), (2009) which reported that, the QOL scores were significantly increased and changed to high level among the breast cancer patients with lymphoedema were aged less than 50 years and were had high school level and come from moderate or low economic status when they enrolment in a program of CDT as a standard therapy for their condition as well as they expressed greater confidence in using their affected arm for their ADL (activities of daily living) post intervention.

The current results in table (8) clarified that, there was no statistical significant positive correlation between the patients' QOL scores and their knowledge and self-care practice at pre program, for the studied group. On the other hand, the current findings also pointed out that, there was a statistical significant positive correlation between the quality of life scores of the studied group and their knowledge and their self care practice about arm lymphoedema at post program, this could be attributed to the effectiveness of the educational program among these patients, as with more knowledge more improving self-care practice for their arm lymphoedema, this lead to more improvement of their quality of life, these findings were in accordance with a study done by Lash and Silliman, (2008), who found that there was no statistical significant positive association between the women with lymphoedema health related quality of life (HRQOL) and their knowledge level or self-care tasks at pre intervention, this could be due to the perception of having oedema or not having oedema causes the decline or the physical limitation in activities, however they observed also, with the old age of women with arm lymphoedema reported clinically positive sub-optimal HRQOL and certain decrease in activities limitation.

It was demonstrated from the current results in table (9) that, there was a statistical significant positive correlation between the self-care practice scores, and the knowledge about arm lymphoedema among the premenopausal group during the program phases, this could be explained by the fact that with increasing in the knowledge about the disease management among premenopausal women, their self-care practice increase and improved which lead to improve in their QOL as they still younger and it is important to maintain their self-body image. Similar findings were found in a study carried out by Cheema, *et al.*, (2007) and Ronka *et al.*, (2008) who detected a statistical significant positive association between the provision of information pre and post treatment for patients with lymphoedema after breast cancer by a physiotherapist who specialized in lymphology, and improvements in their self-care activities during different intervals of intervention which resulting in reduced physical morbidities and improving their quality of life.

Conclusion:

The findings of this current study can be concluded as following: All of the studied subjects of premenopausal group had inadequate knowledge and poor information about arm lymphoedema related to breast cancer before program intervention, which improved after program implementation to reach to all of premenopausal, had adequate level knowledge, and good information about of the disease. Also none of the studied subjects had adequate knowledge about self care practice for their disease, (arm lymphoedema), regarding nutrition, exercises, skin care, hand & arm care, benefits of Compression Garments and following a daily self-care program for lymphoedema before program, while after implementing the educational program, their knowledge improved and followed adequate practice to reach to the majority of premenopausal group had adequate knowledge about self care practice. In addition, the studied subjects of premenopausal group were suffer from poor quality of life in general in domains of physical and pain symptoms, social interaction relations, and psychological dimensions before program implementation, while after implementing the educational program their quality of life improved to high level and good health status to reach to the majority among premenopausal women.

Recommendations:

In the light of the main findings of current study the following recommendations are suggested:

1. Health education should be given to all breast cancer women pre- operative about arm lymphoedema, how to prevent its occurrence.
2. More attention should be focused for early assessment and diagnosis of arm lymphoedema post-operative from physicians and nursing staff for early nursing intervention and educate women about, self-care practices to improve their quality of life during their follow up care.
3. Further attentions from women treated from breast cancer about the importance of early postoperative attending physiotherapy sessions.
4. Conducting comprehensive health educational programs for all women following breast cancer treatment in outpatients' clinics of oncology department units about early signs and symptoms of arm lymphoedema, infections, proper nutrition, and self- care practices.
5. Prepare health education training sessions for all nurses, and health team dealing with patient had arm lymphoedema for improving the quality of their life.

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