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Effect of a planned educational programme regarding post mastectomy exercises on living activities among breast cancer patients

[1] Gehan H Soliman, [2] Nahid Fouad El Gahsh, [3] Omima Said MH Shehata
[1] Assistant Professor of Medical Surgical Nursing, Faculty of Nursing, Menoufia University, Egypt
[2, 3] Lecturers of Medical Surgical Nursing, Faculty of Nursing, Menoufia University, Egypt

Abstract
Breast cancer is an important global public health problem due to its high incidence and mortality. Women's experience of breast cancer is complex, affecting all aspects of life during and after treatment, moreover, may experience a feeling of disability because they are unable to manage daily activities and are unable to care for themselves as well as their families. Breast cancer patients express strong, unmet needs for education, information, and intervention to improve their daily living activities and decrease pain disability. Therefore the exercises is commonly recommended to women after breast cancer surgery.
The aim of the study: Was carried out to investigate the effect of a planned educational programme regarding post mastectomy exercises on living activities among breast cancer patients.
Materials and Method: The study was carried out on 90 adult female patients after modified radical mastectomy at the surgical department at Menoufia University and Shebin El Kom Teaching Hospitals. A quasi experimental research design was used. **Tools:** Four tools were utilized for data collection: Tool 1: Structured interviewing questionnaire: developed by the researchers to assess patient's sosciodemographic, clinical data and knowledge. Tool 2: Activities of Daily Living scales. Tool 3: The Pain Disability Index. Tool 4: Observational checklist.
Results: There were a highly statistically differences among pre, post and follow up interventions regarding to pain index disability score**,** and total Katz index (independence in activities of daily living) as well as instrumental activities of daily living.
Conclusion: Implementing nursing educational programme regarding post mastectomy exercises had high significant effect on knowledge, pain disability, activity of daily living among patients with mastectomy.

Keywords: educational programme, post mastectomy exercises, pain, activity of daily living

Introduction
Cancer is a leading cause of death world-wide accounting for 7.6 million deaths. Deaths from cancer world-wide are projected to continue rising, with an estimated 13.1 million deaths in 2030. Breast cancer is one of the most common cancer diagnosed in women and perceived as a fatal problem. It is also the principle cause of death from cancer among women globally. Despite the high incidence rates, in western countries, 89% of women diagnosed with breast cancer are still alive 5 years after their diagnosis. In Egypt, the highest incidence rates for cancer among females were the breast cancer (32.0%). It has been estimated that by 2050, the incidence of cancer will be 3-fold that in 2013 [1, 2, 3].
Mastectomy is the surgical removal of one or both breasts, partially or completely. Even it is used as a preventive measure. Type of mastectomy includes simple mastectomy, modified radical mastectomy, skin-sparing mastectomy, subcutaneous mastectomy and extended radical mastectomy. Mastectomy is very safe surgery but there are some risks as wound infection, bleeding, hematoma**,** lymphedema**,** numbness in the upper-arm and pain. Studies have shown that many women experience phantom breast sensations after mastectomy so exercise may help alleviate phantom breast pain because regular use of the muscles after mastectomy will keep joints limber, stretch and soften scar tissue, help recruit (open up) new lymphatic, and promote blood flow and actually help reduce clot formation [4, 5].
[5]. added that mastectomy often causes muscle tightness, as well as, lymph node removal can trigger nerve pains, and cording that is common after mastectomy and radiation treatments, result in frozen shoulder and other related problems. Reviewers critically appraised the studies and found that both early and delayed exercise had no effect on the occurrence of lymph edema, although starting exercise training and physiotherapy quickly after surgery was most effective in avoiding shoulder motion deterioration.
The pain frequently occurs in the regions which were injured (axilla, the medial region of the arm and/or anterior wall of the thorax of the side affected) by the local treatment of the breast cancer. The symptoms include, burning, needle pain, feelings similar to minor electric shocks, and tightness in the axillary, medial and upper regions of the arm and/or in the thorax. It is also described as sudden and intense and is associated with chronic hyperesthesia, and can begin immediately after the surgery, six months or even a year following the treatment. It is a symptom which persists with rest and increases during daily activities, responding very poorly to drugs [7, 8, 9, 6].
[10, 6, 11]. added that the American Society of Clinical Oncology revealed that the majority of women who had undergone breast cancer surgery complained of postsurgical shoulder

pain with limited upper arm range of motion extending until 1.5 years after surgery. Likewise, the prevalence of chronic shoulder pain in patients following mastectomy due to breast cancer has previously been reported to be 20% to 68% and this adversely affects on activities of daily living.

After a mastectomy, the surgeon and nurse will ask the patients to do regular exercises to help recovering. The patient's arm may feel stiff on the side where the breast was removed. Simple arm exercises can help to give the patients back to full range of movement, relive pain and stiffness, and reduce swelling [7]. It is recommended to initiate exercises program immediately after mastectomy, in the first postoperative 24-48 h, to prevent muscle contracture and tightening of the arm muscles, chest and upper back muscles [12]. Moreover [13]. illustrated that exercise plays an important role in prevention of complications by releasing muscular tension, preventing scar tissue development and restoring strength and flexibility to joints and muscles that have been affected by the surgery.

Nurses, as one of the members of treatment team, have an important role in diagnosis, treatment, and caring patients with breast cancer and as they spend more time with the patient compared to the other treatment team members, they may be the first people who can recognize the needs of patients and be effective in controlling disease complications and treatment as well as enhancing quality of life of the patients that one of its determinants is daily activities [14, 15, 16].

Significance of the study

After conducting extensive review of researches and based on suggestions given by the experts investigator, such as [17]. who reported that because of the high prevalence rates of breast cancer, an effective evidence based postoperative physical therapy program is necessary to treat postoperative pain and impaired range of motion and prevent other impairments of the upper limb and limitations in activities of daily living in the long term so the researchers felt that there is a great need of conducting planned educational programme regarding post mastectomy exercises for the patients who are undergoing mastectomy to improve living activities. As well as the researchers were encouraged because these exercises that could be performed without the help of any complex device and it does not need any particular preparation for the patients except decision to perform the exercises.

In addition to, unawareness of the patient lead to poor practice of exercises and this can lead to persistent of the complains. Moreover, inadequate knowledge of the patients is more hazardous than ignorance because an ignorant person may seek help but a person with inadequate knowledge may not be able to identify this deficiency.

Operational Definition

- A planned education programme: The process of demonstrating facilitative training on post mastectomy exercises in preoperative period.
- Living Activities**:** the term used to determine the effect of a planned educational programme regarding post mastectomy exercises for the patients and measured by daily of living activities scales and pain disability scale as well as knowledge that refers to appropriate response of patients to the questions included in the knowledge questionnaire regarding breast cancer and post mastectomy exercises and is expressed in terms of knowledge score.

Aims of the study

The aim of the current study was to assess the effect of a planned educational programme regarding post mastectomy exercises on living activities among breast cancer patients.

Research Hypothesis

- Activities of daily living will be improved post intervention of a planned educational programme regarding post mastectomy exercises in study group than before intervention
- Pain disability will be improved post intervention of a planned educational programme regarding post mastectomy exercises in study group than before intervention
- Patient's knowledge will be improved post intervention of a planned educational programme regarding to breast cancer and post mastectomy exercises in study group than before intervention

Materials and Methods

1-Materials

Research Design

Quasi-Experimental research design was utilized for the current study.

Setting

The study was conducted in the surgical department At Menoufiya University and Shebin El Kom Teaching Hospitals.

Subjects

The study subjects composed of convenient sample of 90 adult female patients after modified radical Mastectomy.

They were selected according to the following criteria

1. Adult female patients
2. Patients who are posted for modified radical mastectomy
3. Patients who are not critically ill
4. Patients who are willing to participate in the study.
5. Patients who are available during data collection period

Tools

For the purposes of the study and to collect the necessary data, four tools were utilized by the researchers based on the review of the related literature.

Tool I

Socio-demographic and knowledge assessment structured interview questionnaire: it developed by the researchers to assess patient's socio-demographic, health data and knowledge. It consisted of the following parts:

Part One

Sociodemographic data such as age, sex, marital status, education level and occupation.

Part Two
Health relevant assessment that included the date of admission, past and present medical history, stage of breast cancer.

Part Three
Women knowledge assessment; this part was used to elicit subject knowledge regarding to breast cancer as a disease and post mastectomy exercises, which included two section:
Section A: knowledge regarding disease; it included eight questions related to definition, types, risk factors, clinical manifestations, diagnosis, treatment modalities, types of mastectomy, mastectomy complications.
Section B: knowledge regarding post mastectomy exercises; it included five questions related to definition, benefits, what about, how perform, time.

Scoring System
The knowledge sheet consisted of thirteen questions, each correct answer was given 1 score, while incorrect or don't know answer was given zero score. The total obtained scores ranged from 0 to 13. A high percentage of the studied women were found to have knowledge level more than 30%, so the total grades were summed up and converted into total score percentage and calculated according to the following equation as (patient's score x 100) ÷ total score and ranked as follows:

- Poor: < 30%
- Fair: ≤ 50 %
- Good: > 50 % - 64%
- Very good: > 65 % - 84%
- Excellent: ≥ 85 % [18].

Tool II: Activities of Daily Living scales: it included two parts as following:

Part 1: The Katz Index of Independence in Activities of Daily Living is the most measurement of the client's ability to perform activities of daily living independently because it assesses basic activities of daily living. The Index ranks adequacy of performance in the six functions of bathing, dressing, toileting, transferring, continence, and feeding. Patients are scored yes/no for independence in each of the six functions. A score of 6 indicates full function, 4 indicates moderate impairment, and 2 or less indicates severe functional impairment [19].

Part 2: The Lawton Instrumental Activities of Daily Living Scale (IADL) is an appropriate instrument to assess independent living skills [20]. These skills are considered more complex than the basic activities of daily living as measured by the Katz Index of ADLs. There are eight domains of function measured with the Lawton IADL scale. Clients are scored on all 8 areas of function. Clients are scored according to their highest level of functioning in that category. A summary score ranges from 0 (low function, dependent) to 8 (high function, independent) for clients..

Tool III
The Pain Disability Index (PDI) of living activities: It was developed by [21]. for measuring the degree of a patient's pain is experiencing by which the patients are a self-report asking to rate how much pain interferes in seven areas of life activities: family/home, recreation, social, occupation, sexual, self-care, life-support and average. Participants use a 0 (no disability) to 10 (total disability) numeric rating scale. The test-rest reliability of the PDI was. 44 and the internal consistency was 0.86 (Cronbach alpha rating).

Tool IV
Observational checklist: It was developed by researchers to observe patient performance of exercise program. The performance was classified correctly and completely done, correctly and incompletely done, and incorrectly done. 3 marks was given for performing correctly and completely, 2 marks was given for correctly and incompletely and 1 mark when the patient didn't perform exercise at all or performing it incorrectly.

Method

1. **Written Approval:** An official permission to carry out the study was obtained by the researchers from responsible authorities after an explanation of the purpose of the study.
2. **Tools Development:** Tools were constructed by the researchers after reviewing of the relevant literature and were tested for content validity by five experts in the field of nursing surgical and physical therapist, modification was done accordingly to ascertain relevance and completeness.
3. **Protection of patient's rights and consent:** After permission to carry out the study an oral consent was obtained from patients to participate in the current study.
4. **A pilot study:** A pilot study was conducted on 10% of the study sample to evaluate the developed tools. The data was obtained from the pilot study wasn't included in the actual study.
5. **Data Collection:** Data were collected from first of December 2016 to the first of September 2017.

- The researchers initiated data collection by firstly collecting sociodemographic and health data. Then each participant' knowledge was assessed for disease and post mastectomy exercises as base line data by using tool I, in addition to, daily of living activity by using too II, pain disability by using tool III. The data obtained were used as a pretest to assess the effect of a planned educational programme regarding post mastectomy exercises.
- The researchers gave verbal instructions supplemented by written materials that were presented with pictures as an illustrative guide for more clarification to patients about disease, post mastectomy exercises. This illustration hand out was designed by the researchers based on review of literature, results and recommendations of previous researches and opinions of health care members as well as were tested for its content.
- Each patient was scheduled for a minimum of 5 teaching sessions in five consecutive visits in preoperative period, each session lasted fifteen minutes for each patient. Patients received illustrative guide with pictures for more clarifications of post mastectomy exercises that will

perform the first day -7 days after surgery including 1) deep breathing, 2) pump hand up, 3) shoulder shrugs and circles, 4) arm lifts, 5) shoulder blade squeeze. The previous mentioned exercises perform 3-4 times a day.

- The other subsequent sessions were done after one week to reinforce the provided knowledge and respond to patients exercises as well as patients received illustrative guide with pictures for complementary more clarifications of other post mastectomy exercises that will perform the first 6 weeks after surgery including: 1) arm reach, 2) wand exercise, 3) winging the arm, 4) snow angles, 5) wall climbing, 6) side wall stretch, and 7) side bends. The previous mentioned exercises perform 1-2 times a day.

6. Follow up session after 6 weeks: Each patient was assessed and monitored three times (pre educational programmed regarding post mastectomy exercises, after one week and after 6 weeks) using tool II, III, IV to assess the effect of a planned educational programme regarding post mastectomy exercises on living activities among breast cancer patients.

Statistical Analysis

The collected data was tabulated and analyzed by SPSS 20 (statistical package for the social science software). Quantitative data was expressed as mean and standard deviation (X+SD) and analyzed by applying student t-test for comparison. Qualitative data was expressed as number and percentage (No & %) and analyzed by applying chi-square test. All these tests were used as tests of significance at P = 0.05

Results

Table 1: Number and Percentage distribution for Socio demographic data among study group

Sociodemographic characteristics	Study group (No=90) No. %	
Age (years): Mean + SD	49.3333+ 8.78968	
Sex:		
▪ Male	0	0
▪ Female	90	100
Marital status:		
▪ Single	16	17.7
▪ Married	11	12.3
▪ Widow	45	50
▪ Divorced	18	20
Educational Levels:		
▪ Illiterate	16	17.7
▪ Read & write	9	10
▪ Basic	3	3.3
▪ Secondary education	41	45.0
▪ High education	21	24.0
Occupation:		
▪ Manual work	6	6.6
▪ Administration work	44	48.8
▪ Not work	6	5.6
▪ House wife	34	39.0
Residence:		
▪ Urban	36	40
▪ Rural	54	60

Table (1): It was revealed that the mean age for study group was 49.3333 + 8.78968 years; the majority of the study group was female, widow (100%, 50.0%). Regarding education level. It was observed that 45% of the study group had secondary education and less than one third of the group (3.3%) had basic education. As regarding occupation 48.8% of the study group had administrative work. Moreover, it is also observed that most of the study group lived in rural areas (60%).

Table 2: Comparison between the study group pre, post and follow up intervention regarding knowledge about breast cancer disease

Knowledge	Pre-intervention		Post-intervention		Follow up intervention		X^2	P
	No	%	No	%	No	%		
Knowledge about breast cancer:								
▪ know	17	19	68	75.5	80	89	104.634	0.000
▪ Don't know	73	81	22	24.5	10	11		
Type of breast cancer.								
▪ know	4	4.4	77	85.5	63	70.0	134.018	0.000
▪ Don't know	86	95.6	13	14.5	27	30.0		
Risk factor of breast cancer								
▪ know	12	13.3	77	85.5	85	94.4	155.463	0.000

▪ Don't know	78	86.7	13	14.5	5	5.6		
Clinical manifestation of breast cancer:								
▪ know	30	33.33	79	87.77	74	82.22	73.974	0.000
▪ Don't know	60	66.67	11	12.23	16	17.78		
Diagnosis of breast cancer								
▪ know	0	0.0	69	76.66	81	33.33	171.990	.000
▪ Don't know	90	100.0	21	23.34	9	66.67		
Treatment modalities of breast cancer								
▪ know	3	3.3	49	54.4	12	13.33	110.452	.000
▪ Don't know	87	96.7	41	45.6	78	86.67		
Types of mastectomy								
▪ know	5	5.55	73	81	85	94.45	172.889	.000
▪ Don't know	85	94.45	17	19	5	5.55		
Complication of mastectomy								
▪ know	0	0.0	66	73.33	76	84.44	151.994	.000
▪ Don't know	90	100.0	24	26.67	14	15.56		

Table (2): Illustrated comparison between study group pre, post and follow up intervention regarding knowledge about breast cancer, The finding revealed that, there was a highly significant regarding knowledge concerning to definition of breast cancer, type of breast cancer, risk factor, clinical manifestation, diagnosis, treatment modalities. Types of mastectomy and complication of mastectomy (P<0.000)).

Table 3: Comparison among pre, post and follow up intervention regarding knowledge about post mastectomy exercises

Knowledge	**Pre-intervention**		**Post-intervention**		**Follow up intervention**		**X^2**	**P**
	No	%	No	%	No	%		
Knowledge about exercise								
▪ know	12	13.33	68	25.56	81	33.33	24.099	0.000
▪ Don't know	78	86.67	22	74.44	9	66.67		
Benefits of exercise								
▪ know	5	5.55	79	87.77	87	96. 7	195.598	0.000
▪ Don't know	85	94.45	11	12.23	3	3.3		
What about exercises								
▪ know	5	5.55	80	89	77	85.5	166.944	0.000
▪ Don't know	85	94.45	10	11	13	14.5		
How perform exercise								
▪ know	0	0.0	77	85.5	84	93.3	200.535	0.000
▪ Don't know	90	100.0	13	14.5	6	6.7		
Time of exercise								
▪ know	0	0.0	82	91.1	87	96.7	226.484	.000
▪ Don't know	90	100.0	8	8.9	3	3.3	90	

Table (3): Illustrated Comparison between study group pre, post and follow up intervention regarding knowledge about post mastectomy exercise, The finding revealed that, there was a highly significant regarding knowledge about definition exercise. benefits, what about exercises, how perform and time (P<0.000)).

Table 4: Knowledge levels and total score of the participants before intervention after intervention and follow up intervention

Knowledge	**Pre-intervention**		**Post-intervention**		**Follow up intervention**		**X^2**	**P**
	No	%	No	%	No	%		
▪ Poor	90	100	0	0	0	0	291.240	0.000
▪ Fair	0	0	6	6.7	0	0		
▪ Good	0	0	18	20.0	6	6.7		
▪ Very good	0	0	66	73.3	84	93.3		
Mean + SD	.9333+.81833		10.4556+ 2.05629		11.5889+1. 32304			

Table (4) Show statistically significant differences regarding the mean knowledge score at three different interval.

Table 5: Mean and standard deviation to pain disability of living activity score for the study group in three times intervals pre, post and follow up intervention

pain disability of living activity	pre		post		follow		T	P. value
	Mean	SD	Mean	SD	Mean	SD		
▪ Family home responsibility	6.155	1.620	2.333	1.005	4.200	1.153	34.372	.000
▪ Recreation	4.800	1.317	2.488	.974	3.566	.972	41.074	.000
▪ Social activity	6,677	1.420	2.555	.925	4.055	.769	36.127	.000
▪ Occupation	6.977	1.323	4.833	.768	5.522	.962	69.176	.000
▪ Sexual behavior	6.477	.996	5.011	.644	5.488	.565	75.138	.000
▪ Self-care	7.044	1.262	5.322	.790	5.466	.950	47.694	.000
▪ Life support	6.044	1.217	3.233	1.091	4.333	.962	40.875	.000
Total score (X± SD)	53.555±13.920		25.766±2.445		31.677±5.958			

Table (5): This table showed that mean and standard deviation of pre, post and follow pain index disability score of the study group. It revealed that there was a highly statistically difference between pre, post and follow up regarding to pain index disability score in the study group (P<0.000).

Table 6: Mean and standard deviation of pre, post and follow of total Katz index (independence inactivity's of daily living) of the study group

Katz index level	Pre		Post		Follow		T	P. value
	Mean	SD	Mean	SD	Mean	SD		
▪ *Bathing*	.800	.400	.266	.444	.900	.301	22.627	.000
▪ *Dressing*	.433	.498	.266	.444	.866	.341	17.147	.000
▪ *Toileting*	.833	.374	.266	.444	.766	.425	21.049	.000
▪ *Transferring*	.833	.374	.133	.341	.933	.250	21.555	.000
▪ *Continence*	.766	.425	.233	.425	.100	.000	23.195	.000
▪ *Feeding*	.900	.301	.266	.444	.933	.250	25.053	.000
Total score (X± SD)	2.466±.722		1.166±,3747		2.900±3016			

Table (6): This table show that mean and standard deviation of pre post and follow of total Katz index (independence in activities of daily living) of the intervention group. It revealed that there was a highly statistically difference between pre, post and follow between total Katz index (independence in activities of daily living) of the intervention group (P<0.000).

Table 7: Mean and standard deviation of pre, post and follow of instrumental activities of daily living of the intervention group.

Instrumental activities of daily living	pre		Post		follow		T	P. value
	Mean	SD	Mean	SD	Mean	SD		
▪ Ability to use telephone	.866	.341	.833	.374	.333	.414	17.147	.000
▪ Dressing	.433	.498	.866	.341	.266	.444	17.147	.000
▪ Food preparation	.900	.301	1.00	.000	.300	.460	27.198	.000
▪ House keeping	.800	.402	.900	.301	.200	.402	21.555	.000
▪ Laundry	.866	.341	.900	.301	.133	.341	21.555	.000
▪ Mode of transport	.800	.402	1.00	.000	.366	.484	26.446	.000
▪ Responsibility for own medications	.600	.492	.900	.301	.088	.286	17.404	.000
▪ Ability to handle finances	1.00	.000	.933	.250	.300	.460	27.993	.000
▪ Total score	6.733	1.216	7.300	.941	1.88	1.240	32.49	.000

Table (7): This table show that mean and standard deviation of pre, post and follow of follow of instrumental activities of daily living of the intervention group. It revealed that there was a highly statistically difference between pre, post and follow between instrumental activities of daily living of the intervention group (P<0.000).

Table 8: Distribution of patient of study group regarding to exercise performance in three different interval pre, post, and follow up intervention

Exercise Performance	Pre-intervention		Post-intervention		Follow up		X^2	P-value
	No (90)	%	No (90)	%	No (90)	%		
Deep Breathing							168.792	0.000
▪ Correct and complete	5	5.6	56	62.2	77	85.6		
▪ Correct and incomplete	21	33.3	29	32.2	10	11.1		
▪ Wrong| Don't know	64	71.1	5	6.7	3	3.3		
Pump arm up							195.192	0.000
▪ Correct and complete	3	3.3	60	66.7	84	93.3		

▪ Correct and incomplete	10	11.1	20	22.2	3	3.3		
▪ Wrong| Don't know	77	85.6	10	11.1	3	3.3		
Shoulder shrugs circules							246.657	0.000
▪ Correct and complete	2	94.4	55	61.1	79	87.8		
▪ Correct and incomplete	3	3.3	31	34.4	9	10.0		
▪ Wrong| Don't know	85	2.2	4	4.4	2	2.2		
Arm lifts							213.268	0.000
▪ Correct and complete	4	4.4	65	72.2	0	0.0		
▪ Correct and incomplete	6	6.7	20	22.2	78	86.7		
▪ Wrong| Don't know	80	88.9	5	5.6	12	13.3		
Shoulder blade squeeze							207.156	0.000
▪ Correct and complete	0	0.0	6	6.7	72	80.0		
▪ Correct and incomplete	14	15.6	84	93.3	10	11.1		
▪ Wrong| Don't know	76	84.4	6	6.7	8	8.9		
Total score (X± SD)	5.8667±.99662		13.3111±1.84601		14.1778±1.06610			

Table (8): This table show that performance of the exercises in the study group **.**It revealed that there was a highly statistically difference between pre, post and follow up intervention (P<0.000)

Table 9: Distribution of patient of study group regarding to exercise performance in three different interval pre, post, and follow up intervention

Exercise Performance	Pre-intervention		Post-intervention		Follow up		X^2	P-value
	No (90)	%	No (90)	%	No (90)	%		
Arm reach							218.24	0.000
• Correct and complete	0.0	0.0	62	68.9	79	87.8		
• Correct and incomplete	8	8.9	24	26.7	4	4.4		
• Wrong| Don't know	82	91.1	4	4.4	7	78		
Wand exercise							248.281	0.000
• Correct and complete	0	0.0	40	44.4	74	82.2		
• Correct and incomplete	2	2.2	39	43.3	16	17.8		
• Wrong| Don't know	88	97.8	11	12.2	0	0.0		
Wringing the arm							213.615	0.000
• Correct and complete	0	0.0	63	70.0	80	88.9		
• Correct and incomplete	10	11.1	21	23.3	8	8.9		
• Wrong| Don't know	80	88.9	6	6.7	2	2.2		
Snow angls							195.588	0.000
• Correct and complete	13	14.4	0	0.0	90	100		
• Correct and incomplete	18	20.0	85	94.4	0	0.0		
• Wrong| Don't know	59	65.5	5	5.6	0	0.0		
Wall climbing							207.156	0.000
• Correct and complete	0	0.0	6	6.7	72	80.0		
• Correct and incomplete	14	15.6	84	93.3	10	11.1		
• Wrong| Don't know	76	84.4	6	6.7	8	8.9		
Side wall stretch							196.347	0.000
• Correct and complete	3	3.3	64	71.1	82	91.1		
• Correct and incomplete	28	31.1	26	28.9	7	7.8		
• Wrong| Don't know	59	65.6	0	0.0	1	1.1		
Side bends							195.138	0.000
• Correct and complete	0	0.0	77	85.5	74	82.2		
• Correct and incomplete	27	30	13	14.4	12	13.3		
• Wrong| Don't know	63	70	0	0.0	4	4.4		
Total score (X± SD)	8.5778 ±1.52859		18.9000±2.46800		20.0444±1.23535			

Table (9): This table show that performance of the exercises in the study group **.**It revealed that there was a highly statistically difference between pre, post and follow up intervention (P<0.000)

Discussion

Breast cancer is a major health problem. Modified radical mastectomy is performed to treat invasive breast cancer. Early postoperative physiotherapy is a common treatment. The physician, nurse, or physical therapist can suggest and perform exercises that help to regain movement and strength in arm and shoulder, also exercise can reduce stiffness and pain and improve living activities [22].

Pain is one of the most common breast symptoms experienced by women. It can be severe enough to interfere with usual daily activities. pain after breast cancer surgery is a major problem. In addition to women undergoing mastectomy experience postoperative pain syndromes in approximately

one-half of all cases. Patients post mastectomy can suffer from acute nociceptive pain and chronic neuropathic pain syndromes [9].

Patients who diagnosed with breast cancer and being treated from it has a major impact on day to day living activities of the patients. Most frequently changes in specific daily activities for the patients after diagnosis are perceived as negative. In this respect, the main concern of the present study was to assess the effect of a planned educational programme regarding post mastectomy exercises on living activities among breast cancer patients.

Characteristics of the study sample

From the sociodemographic characteristics of the study sample, the present study revealed that the mean age of the study group was 49.3333 + 8.78968. This result is in the same line with [23] who noted that breast cancer in Egyptian patients has a younger age distribution with the majority of cases occurring at 30-60 years of age. In addition to [7]. reported that in Egypt, breast cancer is the most prevalent cancer among the Egyptian women that constitutes 29% of National Cancer Institute cases and 33% of all young female cancers with the median age of 46 years**.** In addition to this finding was in agreement with [24]. in a study entitled about" Nurse's Role in Early Detection of Breast Cancer through mammography and genetic screening and its impact on patients Outcomes" found that the highest percentage of the studied women were above 40 years. Also, this finding was in the same line with [25] in a study carried out about "Effect of educational program regarding therapeutic exercises for women undergoing mastectomy", who mentioned that the majority of studied samples ranged in age between 40-55 years.

Concerning to marital status the present study revealed that the majority of study group was married, this result is in the same line with [26] who reported that the majority of breast cancer women were married. As well as this result was similar with [27] in a study conducted about "Risk Factors with Breast Cancer among women in Delhi", who found that the majority of the women in both groups were married.

Concerning the educational level, the findings of the present study revealed that more than half of study group had secondary education. This finding is in consistent with [28] who reported that about one third in both studied group had secondary education. As well as this finding matched with [29] in a study conducted about "Breast cancer incidence and case fatality among 4.7 million women in relation to social and ethnic background", who revealed that women with the highest educational level had a significantly higher incidence of breast cancer compared to those with lower education. This is congruent with [30] in a study carried out about "The Effect of Educational Program on Quality of Life for Patients with Cancer Undergoing Chemotherapy", who reported that the highest percentage of the studied groups were illiterate. As well as this finding is not supported with [31], in a study carried out about "Informational needs and concerns among women with breast cancer after surgery", who found that more than one quarter of the study sample were illiterate.

Moreover, concerning the residence, the findings of the present study revealed that more than half of the study group had lived at rural areas. This findings supported by a study carried out by [32] who reported that the patients in their studies lived at rural areas. In addition to, this finding in the same lines in a study carried out by [16] about " The Efficacy of Protocol of Care on Post Mastectomized Women Outcomes" who illustrated that more than half of the control group and about half of the study group were living in rural areas. Also this finding was supported with [33], in a study carried out about "Ethnic differences in the time trend of female breast cancer incidence", who reported that women with breast cancer came from rural areas. Although this finding of the present study contradicted with [27] who stated that a large number of breast cancer patients were living in urban areas.

Effect of a planned educational program regarding post mastectomy exercises on patients' knowledge

Regarding to levels of the total knowledge about breast cancer as a disease as well as post mastectomy exercises, the study findings showed that there were statistically significant differences regarding the mean knowledge score at three different interval pre, post and follow up intervention regarding to breast cancer as a disease as well as post mastectomy exercises. This findings is the same line with [34] who reported that their study findings showed that the patients had inadequate knowledge about arm lymphedema and self-care practice regarding prevention of arm lymphedema before pre-discharge educational guidelines intervention, which improved after guidelines intervention, and the majority of the patients had adequate level of knowledge with a significant difference between pre and post guidelines intervention. Also the majority of the patients had adequate self- care practices and arm morbidity minimized during the follow-up period.

In addition to, the study findings is consist with [35], in the study carried out "the effect of implementing an instructional scheme for mastectomised women regarding post mastectomy exercises in breast cancer" it was studied among fourty four female patients at the oncology clinic of port said General hospital in Egypt. The study findings showed that there was significant improvement in patients knowledge on the importance of arm exercises post mastectomy following implementation of the instructional scheme from 53.7% to 100%. Moreover, non- compliance with exercises also significantly declined following the implementation of the instructional scheme**.**

This goes in the same line with [36] who pointed out, in the study entitled " Lymph edema: Knowledge, Treatment, and Impact among Breast Cancer Survivors*."*, that overall women knew little or nothing about lymph edema before they developed it. Additionally this finding similarly with [37] who found, in the study entitled "The Effect of Providing Information about Lymph edema on the Cognitive and Symptom Outcomes of Breast Cancer Survivors", that patients who received information reported significantly a higher score in the knowledge test**.**

In addition to a study carried out by [18] who reported that regarding to levels of the total knowledge about exercises and preventive care measures of lymph edema of mastectomized women pre and post- protocol of care, the finding of own study revealed that more than half of the study group I have a poor knowledge pre protocol of care compared to no one post protocol of care. Also, the minority of the study groups I and

II have knowledge about exercises and preventive care measures of lymph edema of mastectomized women pre and post- protocol of care compared to about half of the study groups I and II post protocol of care who gain and have a good level of knowledge, so this study showed that there was a significant difference between the study groups I and II pre and post- protocol of care

Effect of a planned educational program regarding post mastectomy exercises on pain disability of life activity

The findings of the present study showed that there was a highly statistically significant differences among pre, post and follow up intervention regarding pain disability. The result of the present study is in the same line with [38] who added that most surgeons recommended a program of early graduated shoulder mobilization within the patients tolerance of pain starting on the first postoperative day and also, [39] who reported that physiotherapy, which began for two weeks after surgery reduced shoulder pain in patients with axillaries dissection in breast cancer as well as improved shoulder function, quality of life, in turn to affect on living activities.

Moreover, [40] who added that in their study73.68% patients in the exercise group improved after 6 weeks. As well as [41] reported also that patients who instructed to do exercises had less pain intensity that reduce pain disabilities of living activities**.** The more exercise performance, the less pain intensity. In addition to [42] stated that exercise therapy that consists of individually designed programs, including stretching or strengthening and is delivered with supervision improved pain and function in intervention group. In addition to this finding is encouraging in view of the findings of [43] who reported that an educational program in the prevention of arm lymphoedema directly promotes patient's quality of life. Exercises might be difficult soon after surgery as the body might be weak but they are an important part of an active and health life style, breast cancer survivors can benefit on two fronts by giving themselves a workout while helping to prevent complications like lymphoedema at the same time. Exercises also increased arm flexibility and decreased arm pain [44].

Effect of a planned educational program regarding post mastectomy exercises on activities of daily living

The current study revealed that there was a highly statistically differences regarding to total Katz index (independence in activities of daily living) and instrumental activities of daily living of the study group in three times intervals, pre, post and follow up intervention. This results supported with [45].

who reported that modified radical mastectomy patients suffered greater functional limitations, concerning the Activities of Daily Living (ADL) of the upper limb than did breast conservation surgery patients as well as studies show that patients with arm swelling experienced considerable activity limitations in home and work environments. Limited shoulder movements and numbness seem to increase self-assessed activity limitation. In addition to this finding in same line with [46, 15].

Who illustrated that presence of limitations in activities of daily living is reported in 9% to 57% of patients, leading to a reduced quality of life that one of its determinants is activity of daily living.

Moreover, impairments in body functions and structures, little is known about activity limitations and participation restrictions and there is therefore an apparent need for such studies. Little is known of how the operation type affects activity limitations and participation restrictions. [47] found that activities most limited after breast cancer operation were lifting, carrying, and reaching out.

This result was in respect with [48], who found that recovery of functional capacity in the treatment group is better throughout the follow up period (after 6 months). Also this result accepted with [49] in the result of the study entitled "Efficacy of modified 3 phases exercise program for patient following breast cancer surgery", who concluded that physiotherapy program was proved to be safe and effective in improving shoulder function without major complications.

In addition to [50] illustrated that strengthening exercises should also be included to restore arm strength and prevent difficulties in performing activities of daily living.

Recommendations

Based on the findings of the present study the following recommendations can be suggested:

1. Booklet provided for each patient who will undergo modified radical mastectomy. It should include written guidelines about post mastectomy exercises
2. Study of the effect of post mastectomy exercises on quality of life and pain among breast cancer patients should be performed as a further study
3. Replication of the study using a larger sample size of patients recruited from different geo-graphical areas in order to generalize the results.

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