

Abstract

Background: Breast cancer is the most commonly diagnosed cancer in women across the world. The majority of women diagnosed with the disease undergo surgery. Many patients suffer from upper limb impairments that result from mastectomy may interfere with some women's ability to resume normal physical function lead to significant psychological morbidity e.g low self-esteem. The basic goal of nursing care for patients who have had a mastectomy is to return the patient to normal life in the shortest period of time with the fewest problems. The aim of the study: to evaluate the effect of early upper limb exercises on reducing its disabilities and improving self-esteem among mastectomy patients. Research design: Quasi-experimental research design was utilized in the current study. Subjects: A purposive sample including (60) female adult patients were included in the current study. Setting: This study was carried out at oncology center in Minia city. Tools of data collection: Three scales were standardized and one tool was utilized to collect data:1-Bio sociodemographic characteristics and Structured interview schedule;2-Educational Information and Training Practices for Post-Mastectomy Exercises;3-Disabilities of the Arm, Shoulder and Hand Scale(DASH);4-Muscle Strength Scale;5-Rosenberg Self-Esteem Scale. Results: There were highly statistically significant differences between study and control groups regarding upper limb function, muscle strength and self-esteem in 1st, 2nd, and 3rd observations post-mastectomy. Conclusion: The study findings concluded that upper limb exercises post mastectomy reduced upper limb disabilities in the study group. Also, it was found to increase and improve their muscle strength and self-esteem. Recommendations: Based on the research findings the researcher recommended applying upper limb exercises post mastectomy had a positive effect on patient's upper limb disabilities. The in-service educational training program that illustrates purposes and benefits of early post mastectomy exercises is very important.

Key Words: Breast Cancer, Mastectomy, Upper Limb Disabilities, Self Esteem, Exercises

Introduction

Breast cancer, a heterogeneous disease in its development and progression, remains the most prevalent female cancer diagnosed worldwide. Based on GLOBOCAN statistics, the incidence of breast cancer has increased from 1.4 million in 2008 to 1.7 million in 2012, which represents a 21.4% increase in the incidence of breast cancer worldwide over this period. Breast cancer is the leading cause of female cancer deaths worldwide, accounting for up to 15% of all cancer deaths. Furthermore, mortality has increased steadily from nearly 805 per 100,000 total deaths in 2008 to about 932 per 100,000 total deaths in 2012⁽¹⁾.

In Egypt, breast cancer is estimated to be the most common cancer among females it is accounting for 37.7%, constituted 12,621 new cases in 2008. The ratio between incidence and mortality for breast cancer was poor (1.9:1) as estimated in many regional Egyptian cancer registries as well as in hospital-based frequencies which mentioned by Journal of the Egyptian National Cancer Institute 2013⁽²⁾. While accounting for 59.6% in 2012 constituted 18,660 new cases. So it is a leading cause of cancer-related mortality accounting 21.6% of females total deaths according to WHO 2014⁽³⁾.

Upper limb dysfunction (ULD) commonly occurs after mastectomy. ULD is defined as restricted upper limb mobility, pain, impaired sensation, and strength. ULD is a significant cause of disability and negatively impacts the quality of life (QoL). ULD found a widely reported variation in prevalence of impaired shoulder range of motion (ROM) (<1%-67%), arm weakness (9%-28%) and shoulder/arm pain (9%-68%)⁽⁴⁾.

The findings of the studies indicate that mastectomy significantly affects negatively on the body image and identity of patients. They concluded that unacceptable body image,

poor self-esteem and poor self-concept usually experienced by patients who had mastectomy often result in feelings of inferiority among them. Consequently, feelings of hopelessness, worthlessness, and helplessness are common among this group of patients ultimately resulting in the narcissistic delegation of the self⁽⁵⁾.

To decrease the incidence of these complications, studies highlight that the performance of early exercises after mastectomy gives positive results, both in the physical and the psychological status and help women to return to their activities of daily living (ADLs) within a shorter period of time⁽⁶⁾.

Therefore, the management of these mastectomy complications was represented a great challenge for the nurse because they have an impact on the patient's functional status and consequently the quality of life. So using of measures, which are inexpensive, available, self-induced by the patient, easy to learn and free from side effects e.g exercises could be effective in the management of pain, fatigue, and prevention of shoulder dysfunction⁽⁷⁾.

The upper limb exercises are one of the nurse's responsibilities for women post-mastectomy that may result in significant and clinically meaningful improvements in shoulder ROM, and aid in the recovery of upper limb movement following mastectomy. The evidence presented suggests that structured exercise programs are beneficial and safe for women who have a mastectomy⁽⁸⁾.

Aim of the study

The aim of the present study was to evaluate the effect of early upper limb exercises on reducing its disabilities and improving self-esteem among mastectomy patients.

Research hypothesis

Applying early upper limb exercises reduce disabilities and improve self-esteem among mastectomy patients.

Subjects and Methods

Research Design:

The quasi-experimental research design was utilized in the current study.

Setting:

The current study was carried out at oncology center in Minia city in inpatient surgical department, surgical outpatient clinic and inpatient and outpatient chemotherapy department.

Study Duration:

The total data collection was collected over a period of eight months starting from July 2016 to February 2017.

Subjects:

A purposive sample of (60) female adult patients was assigned in the current study, they classified equally and alternatively into two equal groups (n= 30) for a control group and (n= 30) for study group according to the determination of the sample size based upon the following sample calculation formula⁽⁹⁾:

$$N = \frac{t^2 \times p(1-p)}{m^2}$$

$$N = \frac{(1.96)^2 \times 0.04(1-0.04)}{0.05^2} \quad N = 59$$

Both groups of the current study were selected according to the following inclusion criteria:

Inclusive criteria:

- 1) Adult female (20 – 60 years).
- 2) Conscious and oriented.
- 3) Patients have first or second or third stage of breast cancer and scheduled for mastectomy.
- 4) In the preoperative period(day of surgery).
- 5) Receiving chemotherapy or radiotherapy after surgery.

Tools of data collection

Three scales and one tool were utilized to collect pertinent data for this current study.

Tool 1: Bio sociodemographic characteristic and structured interview schedule. It was developed by the researcher after revising extensive literature review⁽¹⁰⁾. It was collected at the first interview and it covers two main parts:

Part one: The socio-demographic data for the patient which includes (such as age, marital status).

Part two: The medical-surgical information data as: (such as date of admission, type of mastectomy and location of surgery).

Scale 1: Disabilities of the Arm, Shoulder and Hand Scale (DASH)

This scale used to evaluate patient's upper extremity disabilities post mastectomy. Adopted from Hudak PL, Amadio PC and Bombardier C (1996)(11). It includes 6 parameters (physical, social, symptoms, psychological, work and recreational) and was modified by the researcher who

excluded recreational parameters because it was not applicable with sample's cultural concept.

Total items of DASH scale classified as the following 34-items are a physical parameter (from item 1 to 21) Rank from 1(none difficult)to 5(unable)score. Social parameters (from item 22 to 23) 22 it's rank from 1(not at all)to 5(extreme)score while item 23 rank from 1(not limited at all)to 5(unable)score.

Moreover, symptoms parameters (from item 24 to 29) items from 24 to 28 it's rank from 1(none) to 5(extreme)score but item 29 rank from 1(no difficult)to 5(so much difficult) also Psychological parameter (30) rank from 1(strongly disagree) to 5(strongly agree)score. Lastly work parameter (from item 31 to 34) Rank from 1(no difficulty)to 5(unable)score.

Overall scoring of DASH scale was estimated as the following: less than 33 has no dysfunction, 33-66 has mild dysfunction, 67-99 has moderate dysfunction, 100-132 has severe and more than 132 unable.

Scale 2: Muscle Strength Scale

This scale assesses muscle strength and monitoring over time and to follow progression or remission of disease. This scale Adopted from Hahn AF, et al., (1996) (12)and developed by Paternostro-S, et al., (2008) (13). Scale rank from 0 (total paralysis) to 5(normal muscle strength). Scoring system for this scale when patient assessment indicates five scores this mean she has normal muscle strength but when have zero scores mean she has complete paralysis.

Scale 3: Rosenberg Self-Esteem Scale

This scale was applied to patients to assess patient's self-esteem. This scale Adopted from Rosenberg. (1965) (14). It composed totally from 10 items measures positive feelings about the self-was measured by patients answering of items (1, 2, 4, 6, and 7) and measures negative feelings about the self-was measured by patients answering of items (3, 5, 8, 9, and 10 which are reversed in valence). Scale rank for positive items(1, 2, 4, 6, and 7) from Strongly agree = 3to Strongly disagree = 0. While Scale rank for negative items(3, 5, 8, 9, and 10) Strongly agree = 0 to Strongly disagree = 3.

Scoring system for this scale calculated by the sum of patients positive and negative answering it ranges from 0 to 30 when patients assessment range from(15 to 25) this mean she has normal self-esteem but when she has scored below 15 this means has low self-esteem and higher than 25 scores until 30 scores indicate higher self-esteem.

Validity of tools

Tools content validity was done to identify the degree to which the used tools measure what was supposed to be measured. The developed tools were examined by a panel of three experts in the field of the study (Minia University). All jury member (100%) agree that current study tools were valid and relevant with the aim of the study.

Reliability of tools

Cronbach's alpha reliability of the Disabilities of Arm, Shoulder, and Hand (DASH)questionnaire was 0.96, inter-rater reliability agreement of the medical research council Muscle Strength Scale (MSS)were finger extension: 0.77 & wrist extension: 0.78), and test-retest reliability for the Rosenberg Self-esteem Scale (RSS)range from 0.82 to 0.85.

A pilot study was carried out on 6 patients (10%) of the total sample to test feasibility, objectivity, and applicability of the tools. Those patients were excluded from the study.

Ethical Consideration

An official permission to conduct the study was obtained from the ethical committee of the faculty of nursing, dean of nursing faculty, oncology institute director, research center afflicted to Egypt Ministry of Health and agreement from Egypt academic for research center and technology. Written consents were obtained from subjects who were informed about the purpose, procedure, benefits, nature of the study, follow-up and she had the right to withdraw from the study at any time without any rationale. Confidentiality and anonymity of each subject were ensured through coding of all data and protecting the obtained data.

Procedure

The current study was conducted by preparing of different data collection tools, in addition obtaining formal paper agreement which was taken induration one month before conducting the study. Collection of study data was done through daily basis (3 to 4 days per week) during morning or evening shift.

Selected sample was admitted to female surgical units in their preoperative period(day of surgery) patient who was scheduled for a mastectomy was informed by the researcher individually about purpose and nature of the study, then researcher obtained oral or written consent from those who accepted to participate in this study. The researcher has started a collection of data from control group firstly in four months by using the first tool (Bio socio-demographic characteristics) and the three study scales. While data collection from study group was started after finishing control group by using the first tool and the three scales.

Data collection for study sample was done in inpatient surgical department first during their hospitalization (ranged

from 1to3days) then in outpatient clinic and chemotherapy for follow-up. The total number of sessions for data collection & training session for the study group was 5-7 sessions. Its duration for both study groups was ranged from 30 to 60 minutes.

Educational information and training practices about post-mastectomy exercises were applied by the study group at a day of surgery and the researcher was evaluated and ensures their competence in this practice immediately on the same day according to practice checklist. It was started on the second day of surgery before removal of drains specific exercises such as shoulder rolls, hand squeeze, elbow stretch, wrist exercise, until removal of the drains. After drain removal from patients, the exercises which were performed by patients before removal of her drain were repeated plus others exercises which were applied such as arm stretch, arm lift, hands on head, hands behind neck and wall crawl. Also, the researcher has given patients a photo brochure prepared by researcher after extensive literature review ⁽¹⁵⁻¹⁶⁾. It was included 9 types of exercises. Also, instructions regard duration and frequency to ensure that the patients perform this exercises accurately after their hospital discharge (4-6 weeks) and at home.

Follow-up for all patients (study &control) started at the day (15th, 30th, and 45th) postoperatively through face to face interview to evaluate the extent of upper limb disabilities and their self-esteem. Also, researcher encouraged patients of the study group to attend follow-up.

Statistical analysis of data.

Data were summarized, tabulated, and presented using descriptive statistics in the form of frequency distribution, percentages, means and the standard deviations as a measure of dispersion. A statistical package for the social science (SPSS), version (20) was used for statistical analysis of the data, as it contains the test of significance given in standard statistical books⁽¹⁷⁾. Numerical data were expressed as mean and SD.

Results

Table (1) :- Distribution of the Socio demographic characteristic for both study & control groups subjects. (n= 60).

Demographic data	Groups				χ^2	P – value
	Study (n=30)		Control (n=30)			
	No.	%	No.	%		
Age / years						
18-	1	3.3	1	3.3	t=.704	0.872
30-	11	36.7	8	26.7		
42-	12	40.0	14	46.7		
54- 65	6	20.0	7	23.3		
Mean ± SD	44.9 ± 9.1 years		45.8 ± 9.5 years			
Marital status					4.500	0.212
Single	1	3.3	4	13.3		
Married	24	80.0	21	70.0		
Widow	3	10.0	5	16.7		
Divorce	2	6.7	0	.0		
Residence					0.300	0.584
Rural	19	63.3	21	70.0		
Urban	11	36.7	9	30.0		NS
Educational level					0.382	.826
Illiterate	21	70.0	23	76.7		
Read and write	3	10.0	2	6.7		
Secondary school and diplom	6	20.0	5	16.7		NS
Occupation status					0.352	0.839
Work	1	3.3	1	3.3		
Farmer	2	6.7	1	3.3		

Demographic data	Groups				χ^2	P – value
	Study (n=30)		Control (n=30)			
	No.	%	No.	%		
housewife	27	90.0	28	93.4		NS

NS= not significant

It showed that the mean average age among study & control group were similar constituted 44.9 ± 9.1 years and 45.8 ± 9.5 years respectively. As regards marital status for both groups, the highest percentage among study and control groups were married constituted (80% & 70%) respectively while the lowest percentage for same groups were single constituted (3.3% & 13.3%). On the other hand, the table results found that more than two-thirds of the study sample (study and control group) were lived in rural area constituted (63.3% & 70%) respectively. Related to their educational level (70% & 76.7%) respectively of the current study sample (study and control groups) were illiterate while most of them were occupied as housewives. Lastly, there were no significant differences between study and control groups regarding socio demographic characteristics.

Table (2) Percentage distribution patients of both study & control groups according to overall scoring of DASH scale after applied post mastectomy exercises during three observations (n= 60).

Total DASH scale	Groups				Fisher exact	P
	Study (n=30)		Control (n=30)			
	No.	%	No.	%		
1st observation						
Mild dysfunction	19	63.3	0	.0	52.593	0.000**
Moderate dysfunction	9	30.0	0	.0		
Severe dysfunction	2	6.7	25	83.3		
Unable	0	.0	5	16.7		
Mean ± SD	64.1 ± 17.7		122.4 ± 9.6		t=15.901	0.000**
2nd observation						
Mild dysfunction	26	86.7	0	.0	51.111	0.000**
Moderate dysfunction	4	13.3	5	16.6		
Severe dysfunction	0	.0	23	76.7		
Unable	0	.0	2	6.7		
Mean ± SD	52.6 ± 12.5		110.2 ± 11.6		t=18.543	0.000**
3rd observation						
No dysfunction	1	3.3	0	.0	52.842	0.000**
Mild dysfunction	27	90.0	0	.0		
Moderate dysfunction	2	6.7	17	56.7		
Severe dysfunction	0	.0	13	43.3		
Mean ± SD	45.7 ± 8.9		99.2 ± 12.3		t=19.289	0.000**

* p ≤ .05 ** p ≤ .01

Table (2) illustrated that the highest percentage constituted (83.3%, 76.7%, 43.3%) respectively in three observations among control group was had severe dysfunction except for lowest percentage among the same group was unable to function constituted (16.7%, 6.7%) respectively during their observation of 15th and 30th days from operation time (first and second observations) while the results for the study group showed highest percentage constituted (63.3%, 86.7%, 90.0%) respectively in three observations indicate mild dysfunction after they applied mastectomy exercises. The rest of observation results revealed zero percentage.

There were highly statistically significant differences among both study and control group regarding total scores in 1st, 2nd, and 3rd observations.

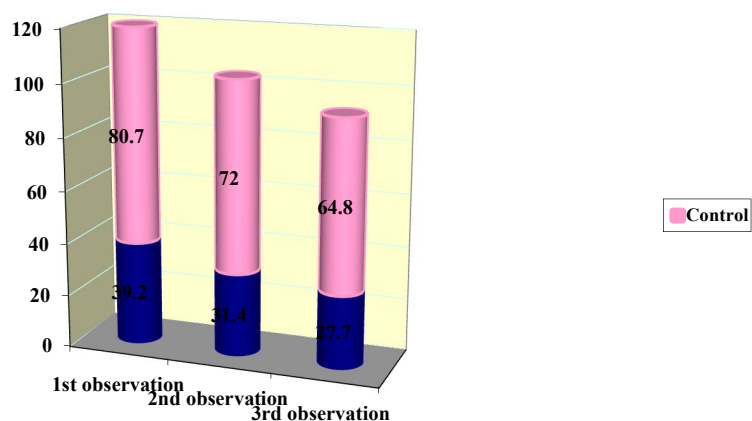


Figure (1) Mean scores for the physical status among three observations

It showed that the mean average of physical status among study group after performing mastectomy exercise during three observations was constituted (39.2 ± 12.0 , 31.4 ± 7.7 , 27.7 ± 6.2) respectively which indicate decline in their disabilities after surgery while the mean average of physical status among control group during three observations was constituted (80.7 ± 6.7 , 72.0 ± 8.2 , 64.8 ± 8.4) respectively which indicate increase in their disabilities after surgery.

Table (3) Percentage distribution of the patients of both study & control groups as regarding to their muscle strength (n= 60)

Muscle Strength Status	1 st observation		Control (n=30)		2 nd observation		Control (n=30)		3 rd observation		Control (n=30)	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Fair or Slight Weakness	2	6.7	7	23.3	1	3.3	8	26.7	0	0.0	8	26.7
Good Muscle Strength	9	30.0	16	53.3	7	23.3	16	53.3	8	26.7	16	53.3
Normal Muscle Strength	19	63.3	7	23.3	22	73.3	6	20.0	22	73.3	6	20.0
Test of significance	$\chi^2 = 10.276$		P – value = 0.002**		$\chi^2 = 18.109$		P – value = 0.001**		$\chi^2 = 19.810$		P – value = 0.000**	
Mean \pm SD	4.6 \pm .6		4.0 \pm .69		4.7 \pm .5		3.9 \pm .7		4.8 \pm .4		3.9 \pm .7	

Table (3) revealed that the majority of study group has normal muscle strength constituted (63.3%,73.3%,73.3%) respectively in three observations after they applied mastectomy exercises during their observations while minority of control group has normal muscle strength (23.3%,20 %,20%) respectively in three observations. There were highly statistically significant differences among both study and control group regarding their muscle strength status in 1st, 2nd, and 3rd observation.

Table (4) Percentage distribution of the patients of both study & control groups as regarding their self –esteem assessment (n= 60)

Self- esteem	1 st observation		Control (n=30)		2 nd observation		Control (n=30)		3 rd observation		Control (n=30)	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Normal self esteem	18	60.0	5	16.7	24	80.0	5	16.7	26	86.7	6	20.0
Low self esteem	12	40.0	25	83.3	6	20.0	25	83.3	4	13.3	24	80.0
Test of significance	$\chi^2 = 11.915$		P – value = 0.001**		$\chi^2 = 24.093$		P – value = 0.001**		$\chi^2 = 26.786$		P – value = 0.000**	
Mean \pm SD	16.3 \pm 4.7		10.9 \pm 3.8		18.2 \pm 4.7		11.1 \pm 3.7		18.9 \pm 4.5		11.8 \pm 2.5	

Table (4) showed that the highest percentage constituted (60.0%,80.0%,86.7%) respectively in three observations among study group was had normal self-esteem after they applied mastectomy exercises except lowest percentage among the same group was had low self-esteem constituted (40%, 20%, 13.3%) respectively during their observation of 15,30, 45th days from operation time (first, second and third observations) while reverse percentage constituted (83.3%,83.3%,80%) respectively in three observations among control group was had low self-esteem. There were highly statistically significant differences among both study and control groups regarding their self-esteem assessment in 1st, 2nd, and 3rd observation.

Discussion

The present study revealed that, the mean average age among study& control groups were similar constituted 44.9 ± 9.1 years and 45.8 ± 9.5 years respectively this related to the risk of breast cancer increased with age among Egyptian women. This result was in agreement with Mamdouh, et al .(2014) (18) who mentioned that, distribution of breast cancer among Egyptian patients was occurring between 30-60 years of age. The median age at diagnosis is 49 years.

Also, another research agrees with the current study finding Farouk, et al. (2016) (19) illustrated that the incidence of breast cancer increases with age and breast cancer in young women is considered aggressive and associated with a poor prognosis.

This result was also in contradicted with National Cancer Institute(2017) (20) revealed that the risk of breast cancer increases as individuals aged because the older are more likely to be exposed to changes in their cells.

The result of this present study illustrated that the majority of patients were married in both groups. From the researcher's point of view, this may be due to long-term use of oral contraceptives. This result agreed with Augustin Balekouzou, et al. (2017) (21);illustrated that prolonged endogenous estrogen exposure and use of oral contraceptive pills have been associated with breast cancer.

As regard, current study sample 's residence showed that the majority of patients were from the rural area in both groups this may be related to limited access to medical care for cancer patients except in one urban city at minia Government. Another rationale was the rural women had specific personal

characteristics as lifestyles, economic and environmental factors ...etc. that resulted in their risk in exposing for breast cancer this result supported by Dey, et al. (2010) (22). While, according to Huo, et al. (2014) (23) report that the patients from rural areas were significantly more likely than urban patients to present with late-stage of breast cancer. This finding raises questions regarding availability and utilization of preventive, screening, and diagnostic services in rural areas.

In contrary with the current study findings Fei, et al. (2015) (24) mentioned that, the incidence rate of breast cancer was reported to be approximately 2.3 times greater in urban areas than in rural areas. This may reflect higher exposure to risk factors in urban environments.

The present study revealed also that more than two-thirds of the study and control groups were illiterate because women with low income and low education tend to have more advanced disease, Egyptian rural culture not allowed for women to attend or complete their education level.

On the other hand; Shehnaz, et al (2008) (25) study was with contradicted this finding, the women with higher education were more likely to be diagnosed with breast cancer. They concluded that the women with higher education levels attend breast cancer screening to a greater extent than less educated women.

The result of the current study revealed that decrease disabilities of the upper limb in study group more than the control group. This finding is in agreement with Ana, et al. (2008) (26) they reported that the effect of an early exercise program after mastectomy, beginning the first postoperative day compared to the control group, the experimental group

demonstrated significant improvements in range of motion and functional abilities score post exercises, indicating less disability for the exercise groups.

Results of the current study showed that a highly statistically significant improvement regarding physical status parameters. Because post mastectomy exercises improve shoulder range of motion lead to improving arm function and improved physical function. This result was further supported by Siew and Aisya (2015)⁽²⁷⁾ they found that exercise seems to be the one rehabilitation method showed significant improvement in the physical outcomes e.g, for shoulder mobility.

In addition, this result was further supported by Roger. Anderson, et al. (2012)⁽²⁸⁾ reported that illustrate early exercise intervention after breast cancer surgery, illustrate a significant improvement in physical function, with no decline in health-related quality.

Regarding the effect of exercise on muscle strength. The current study revealed that the majority of study group has normal muscle strength because exercises prevent shortening of the muscles, prevention of contracture of the joints, and improvement in lymph and blood circulation after mastectomy this lead to maintain normal muscle strength. This finding is compatible with Siew and Aisya (2015)⁽²⁷⁾ they reported that, exercise was found to be effective in improving shoulder mobility, limb strength, and wound healing.

As well this finding also is in agreement with Suelen Helena da Silva, et al. (2014)⁽²⁹⁾ reported that a mastectomy has a direct impact on the upper limb muscle strength, functionality and on life quality of women, exercise plays an important role in the rehabilitation of these impacts.

In addition Mary Lou Galantino, et al. (2013)⁽⁸⁾ stated that the upper limb exercises positively affected outcomes, including ROM, muscle strength, and shoulder function post-mastectomy.

The current study revealed that, improvement in self-esteem among study group than the control group in three observations after they applied post mastectomy exercises. This may be attributed to improvement in physical functioning, ability to perform the activity of daily living and ability of women to care for their families result from their commitment to exercises lead to enhance in women's self-esteem.

This finding is congruent with Syamala, et al. (2015)⁽³⁰⁾ reported that post mastectomy exercise assists breast cancer survivors in regaining their lost functions. It also helps to improve their independence in daily activities, reduce their need for caregivers, and thereby improving their quality of life.

In the same line Mustian et al. (2004)⁽³¹⁾ aimed to compare the efficacy of a moderate form of exercise and psychosocial support (PST) for improving Health-Related Quality of Life (HRQL) and self-esteem among breast cancer survivors found that a moderate form of exercise that may be an effective therapy for improving HRQL and self-esteem among breast cancer survivors.

In contrast with current study finding the study done by Segar, et al. (1998)⁽³²⁾ revealed that, women with mastectomy who exercised had significantly less depression and state and trait anxiety over time compared to controls but self-esteem did not change significantly.

Conclusion

The study findings concluded that the upper limb exercises post mastectomy reduced upper limb disabilities in the study group. Also, it was found to increase and improve

their muscle strength and self-esteem. Results illustrated that there were highly statistically significant differences between study and control groups regarding upper limb function, muscle strength and self-esteem in 1st, 2nd and 3rd observations post-mastectomy.

Recommendations:

- Based on the research findings the patients' health education about applying upper limb exercises post-mastectomy had a positive effect on patients' upper limb disabilities.
- The in-service training programs that illustrate purposes and benefits of early post mastectomy exercises for staff nurses is very important.
- Follow a nursing guidelines for post-mastectomy exercises based on evidence nursing practice.
- Nurses emphasis to provide an emotional support and maintain a psychological status for the women who have a mastectomy to ensure their self-esteem improvement.

Acknowledgment

The researchers would like to acknowledge the contribution of all participants who kindly agreed to take part in the study. They generously gave their time and attention to conduct this study. This study would have been impossible without their generosity.

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