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Effect of Instructional Guideline on Biopsychosocial Functional Status of Patients Undergoing Mastectomy

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Abstract: **Instructional guideline should be practiced by female patients undergoing mastectomy to promote healing process of surgical wound, reduce potential complications, and obtain optimal level of independency to practice activities of daily living Aim: The current study aimed to assess effect of instructional guideline on biopsychosocial functional status of patients undergoing mastectomy through the following: 1) Assessing patients' knowledge regarding mastectomy & its instructional guideline 2) Assessing patients' bio-psychosocial functioning including physical, psychological, social and spiritual status.3) Developing, implementing and evaluating instructional guideline on bio-psychosocial functional status of patients undergoing mastectomy. Design: Quasi experimental design was used to achieve the aim of the current study. Setting: The study was conducted at breast surgery department in Emergency hospital and breast surgery outpatient clinics affiliated to Ain Shams University hospitals. Subject: A purposive sample of 60 patients undergoing mastectomy was selected to conduct this study. Tools: 1) Patients` structured interviewing questionnaire2) Biopsychosocial functioning status assessment tool. Results: the results of present study revealed that there are statistically significant improvement in total level of patients' knowledge post instructional guideline with (t= 3.6 and p value =0.001*). In addition to, statistical significant differences were found among patients included in the study post instructional guideline comparing to pre instructional guideline regarding their physical, social, psychological and spiritual status functioning with (P value = 0.000**). Conclusion: Instructional guideline had positive effect on biopsychosocial functional status of patients undergoing mastectomy. Recommendations: The importance of conducting educational program including patients undergoing mastectomy that should be up-dated periodically in order to enhance health outcomes for these patients.**

Keywords: **biopsychosocial functional status, instructional guidelines, mastectomy.**

I. INTRODUCTION

Mastectomy defined as the surgical removal of the breast tissue, usually including the areola and nipple, mastectomy explained in different forms for example; 1. Simple mastectomy associated with breast tissue itself 2. Partial or segmental mastectomy and 3. Modified radical mastectomy in which the lymphnodes can be dissected during surgery. Mastectomy is usually performed as a treatment of breast cancer. Generally, the women most commonly take a decision about her condition and decide along with the surgeon whether to be treated with a lumpectomy or a mastectomy **(Czerniec, Ward &Kilbreath, 2016).** Woman who had mastectomy liable to many complications as lymphedema can be occurred during treatment for breast cancer; lymph nodes may be removed during surgery and or may be damaged by radiotherapy at the time of treatment. This can lead to negative effect on lymph function by stopping the lymph from flowing freely and can cause fluid to build up in the arm or breast. **(Hulya, 2012)** patients suffering from lymphedema post mastectomy can experience pain, swelling, arm tightness, heaviness of the arm, and recurrent skin infections **(Shahed, Vanaki &Tahamsebi, 2016).**

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Post mastectomy complications can caused and developed by many factors, one of this complications such as lymphedema. Many factors can be controlled and preventable risks throughout detecting these factors and how to deal with the risk factors, such as**:** a. Obesity: these patients with overweight are highly risk to develop lymphedema after breast cancer treatment. b. Cigarette smoking: can also increase risk of developing post mastectomy lymphedema. c. The injury or infection affecting the arm of the mastectomy side: the infection can cause inflammation of the body's tissues (**Rahou, El Rhazi, Ouasmani, 2016).** There are other risk factors can be preventable, this factors as a. The removed number of lymph nodes: as well as axillary lymph node dissection, which is a procedure defined as removes many or most of the nodes (from 5 to 30), is usually associated with higher risk than sentinel lymph node biopsy. b. Seroma formation**:** is the buildup of clear bodily fluids in any of the areas affected by surgery. Women with serom as requiring treatment had a higher risk of developing lymphedema **(Khanna, et al, 2017).**

Assessing bio-psychosocial functional status of patients undergoing mastectomy is very important in order to enhancing their ability to perform care for oneself by self-examination, providing care, and complaining of self-regimen to promote well-being (**Boccardo, et al, 2011)**. There are a few women have a mental issue due to appearance alteration which cause a negative and distinctive body image. The alteration in body image among breast cancer survivors incorporates disappointment with appearance, seen misfortune of gentility and body judgment, hesitance to see at one's self bare, feeling less sexually alluring, self-consciousness almost appearance, and disappointment with surgical scars. The important writing emphasizes that patients with breast cancer can involvement changes in body image, self-concept, emotions, behavior, family dynamics, and the roles of the patient and her family **(Ridner, et al, 2012).**

Instruction is a vital part for patients and enhance patient wellbeing; in any case, instruction alone isn't adequate to supply the support that patients require. It is imperative to supply assets that address physical, psychosocial and social needs, as well as the accessibility of internal and external assets (e.g., lymphedema advisors or health care provider, group therapy, printed data and/or other media) **(Pamela, et al, 2014).**Increasing the awareness and instruction of breast cancer survivors early after diagnosis must be actualized about risk factors for the development of lymphedema post mastectomy and risk-reducing exercises that must be taken after to maintain a strategic distance from a few wellbeing issues post mastectomy, on the off chance that essential. So that, to expanding numbers of cancer survivors, supportive-educative programs will play an essential part within the quality of survivorship **(Adams, Schmid & Rugo ,2017).**

Patients undergoing mastectomy should be follow instructional guideline to promote healing process of surgical wound, reduce potential complications, and obtain optimal level of independency to practice activities of daily living so that, education must be continued for these patients. **(Kilbreath, et al., 2016).**Instructional guideline that should be explained for female patients suffering from lymphedema post mastectomy include: (a) skin care guidelines (e.g., keep skin clean and dry); (b) infection prevention guidelines (e.g., prevent punctures such as blood sample collection, injections, or intravenous infusions in the affected limb, observe for signs and symptoms of infection and wear gloves when gardening); (c) practices arm exercise and home activities ; (d) avoid limb constriction through wear well-fitted compression garments when prescribed and (e) avoid extreme temperatures as possible as **(Armer, et al, 2013;American Cancer Society, 2017)**

Significance of the study

In Egypt, there were 820 female patients underwent mastectomy during their admission at the breast surgery department in Emergency hospital which affiliated to Ain shams university hospitals in the year 2018 (**statistical medical records at Emergency hospital affiliated to Ain Shams University Hospitals, 2018)** Female patients undergoing mastectomy are suffering from psychological problems, functional and physical impairment (**Kramer, 2018).**So, increasing awareness and education of patients undergoing mastectomy is very effective to minimize co-morbidity.

Aim of the study:

The aim of this study is to assess effect of instructional guideline on biopsychosocial functional status of patients undergoing mastectomy through the following:

1) Assessing patients' knowledge regarding mastectomy & its instructional guideline.

2) Assessing patient's bio-psychosocial functioning regarding physical, psychological, social and spiritual status.

3) Developing, implementing and evaluating instructional guideline on bio-psychosocial functional status of patients undergoing mastectomy.

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Research hypothesis :

The current study hypothesized that :instructional guideline will have positive effect on biopsychosocial functional status of patients undergoing mastectomy.

II. SUBJECTS AND METHODS

Research Design: Quasi experimental design was used to achieve the aim of the current study.

Setting: The study was conducted at breast surgery department in Emergency hospital and breast surgery outpatient clinics affiliated to Ain Shams University hospitals.

Subject: A purposive sample of 60 patients undergoing mastectomy for the first time was selected within the following **inclusion criteria;** adult female patients who not having any participation in other study, not having history of psychiatric disorders, not having history of other malignancies (breast cancer should not be the result of recurrence) and agree to participate in the study, free from hearing or visual impairments, which prevent proper and efficient communication.

The sample size was determined according to the total number of patients' who had mastectomy during the year 2018 in the previous settings were (820) patients. The sample size was calculated according to the following equation:

$$\frac{Z2 \times P \times Q}{G2}$$

- Z means significance value
- P means percentage of problem in community
- Q means (1-P)
- G means degree of accuracy

Tools for data collection: Data was collected using the following two tools:

Tool I: patients' structured interviewing questionnaire: this questionnaire developed by the researchers to assess patients' knowledge regarding mastectomy & its instructional guideline after reviewing related and recent literatures .It was consisted of three parts:

1st**Part:** It was concerned with patients' demographic characteristics include (age, marital status, residence, level of education and working status).

2nd part: It was concerned with patients' medical data which includes (body mass index, type of surgical procedure, and presence of co-morbid diseases and menopausal status).

3rd part: it was used to assess patients' knowledge regarding mastectomy pre and post instructional guideline (2 weeks post education). It contain **A-** concerned with a- lymphedema post mastectomy include (lymphedema definition, its stages, risk factors) which contain nine statements. **B-** concerned with instructional guidelines include (a) skin care guidelines, (b) infection prevention guidelines, (c) exercise and home activities, (d) avoidance limb constriction and (e) avoidance extreme temperatures which contain ten statements (each question scored as one for correct answer and zero for incorrect answer based on (**Costa & Saldanha, 2017)** and (**Kramer, 2018).**

Scoring system of the 3rdpart: - This part consisted of 19 statements in the form of true & false questions regarding mastectomy and its instructional guidelines; the responses for the statements were either

- Correct answer (given one score).
- Incorrect answer (given zero score).

- A total score for patients' level of knowledge was calculated and categorized into satisfactory or unsatisfactory as follows:

- ≥ 60 % (≥ 11 degree) was considered satisfactory.
- < 60 % (<11 degree) was considered unsatisfactory

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Tool II: Biopsychosocial functional status assessment tool:

This tool used to assess the biopsychosocial functional status of patients suffering from lymphedema post mastectomy based on **(Ferrell, Dow & Grant, 1995)**. It is representing the four domains including physical, psychological, social and spiritual state where as each domain contains five statements.

Scoring system: Biopsychosocial functional status contains a twenty statements where-as, the patient is asked to read each statement and decide if she agrees with the statement or disagrees (agree=2 grade, or disagree=1 grade). The total scoring was categorized into satisfactory or unsatisfactory as follows:

- ≥ 60 % (≥ 12 degree) was considered satisfactory (better biopsychosocial functioning).
- < 60 % (< 12 degree) was considered unsatisfactory (worst biopsychosocial functioning).

Instructional guideline: A booklet designed in Arabic language, based on recent medical and nursing knowledge derived from **(Shahed, vanaki, & Tahhmasebi, 2016)** it gives insight about mastectomy as well as instructional guideline to enhance biopsychosocial functioning of these patients including (skin care guideline, exercise and home activities, avoidance of extreme heat, avoidance of arm constriction and infection prevention guideline).

III. TOOL VALIDITY AND RELIABILITY

Testing validity; by using face and content validity. Face validity aimed at inspecting the tools for clarity, relevance comprehensiveness, simplicity and applicability; minor modifications were done. Testing content validity to ensure that an assessment tool produces stable and consistent result overtimes. The validity was done by 5 experts one professor, two assistant professors in adult nursing and two professors in critical care nursing). **Tools reliability**: Alpha Cronbach test was used to measure the internal consistency of tools (reliability of the used tools). These showed good reliability scores for the following tools: (patients' knowledge r= 0.79 and r=.77 for biopsychosocial functioning status).

IV. PILOT STUDY

Pilot study was performed on 10% of patients who met the selection criteria to investigate and ensure the feasibility, objectivity and applicability of the study, in addition to clarity, adequacy and internal consistency of the study tools to determine possible problems in the methodological approach or instruments. The tools were completed without difficulty, adding support to the validity of the instruments. Little modification was done e.g. rephrasing and rearrangements of some sentences. Patients who were involved in the pilot study were included from the main study sample.

V. FIELD WORK

1. The tools were designed and developed by the researchers based on and after reviewing the recent and related literature.

2. Data was collected in the period of six months from; February 2019 to July 2019. The teaching methods were used in patient educational sessions are lecture followed by discussions in addition to audiovisual materials and practice.

3. There are 2 tools were used, these tools aims to assess biopsychosocial functioning status of patients undergoing mastectomy including: Patients' structured interviewing questionnaire and biopsychosocial functional status assessment tool that filled by researchers twice, pre & post instructional guideline implementation within 45-60minutes.

4. Once the approval was taken to carry out the study, the researchers started to collect data and implement instructional guideline, each patient receive educational instruction individually to meet the indication criteria from the education.

Guidelines sessions:

The sessions of instructional guidelines were directed toward theoretical knowledge and practical part as the following:

- **The sessions**: The patient was instructed in two sessions before time of surgical operation, divided as one session for theoretical part and one session for practical part each session time about 45 minutes, the implementation include skin care guideline, exercise and home activities, avoidance of extreme heat, avoidance of arm constriction and infection prevention guideline.

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- The patients were advised and prompted to follow directions of instructional guidelines. Furthermore family members were advised to be present at the side of the patients during each step of treatment plan.
- The researchers were available at morning and afternoon shift, three time per week.
- Patients were handled the instructional guideline (booklet), with some explanations from the researchers regarding its importance; at breast surgery department affiliated to Emergency hospital pre mastectomy.
- Finally the evaluation was done post 2 weeks of mastectomy using two study tool at beast surgery outpatient clinic affiliated to Ain shams university hospitals.

Administrative design:

An official permission was obtained from faculty of nursing - Ain Shams University to the medical director and head of breast surgery department at Emergency hospital and medical director of breast surgery outpatient clinic affiliated to Ain shams university hospitals, the aim of the study was explained to take approval for data collection.

VI. ETHICAL CONSIDERATION

The permission was obtained from the committee of scientific research ethics in the faculty of nursing at Ain Shams University before conducting the study. In the same line, also the researchers explain clearly the purpose to the patients, the anonymity and confidentiality of the collected data was maintained. The patients they can participate or not participate in the study according to willingness and that they have the right to withdraw from the study at any time without giving any reason consider their values, culture and beliefs.

VII. STATISTICAL DESIGN

The data were analyzed using (SPSS) version 20. Qualitative data was presented as number and percent, paired sample t-test. Relations between different qualitative variables were tested using paired t test (t). Probability (p-value) ≤ 0.05 was considered significant and < 0.001 was considered highly significant. While, > 0.05 was considered non-significant

VIII. RESULTS

Regarding patients' demographic characteristics, **table 1** shows that, (51.7%) of study sample their age between 40 to less than 50 years. (88.3%) of them were married. (70%) of them were living in urban areas, as regards their educational level, 45% of them read and write. In relation to working status, it was found that, 80% were not working and housewives.

Concerning patients' medical data, **table 2** shows that, the 76.6% of the study subjects were overweight. According to type of surgery that has been done for the studied subjects, it was found that (88.8%) of them had a modified radical mastectomy. Regarding the past medical history of the studied subjects, it was found that, (73.4%) of them were free from other health problems. Also, 51.7 of study sample were in post-menopausal period.

Table 3 shows that; there was statistically significant improvement of patients' knowledge level regarding mastectomy post instructional guideline implementation than pre guidelines whereas (P value = 0.000*,0.001*,0.004*,0.013*) as perspectives.

Regarding patients' knowledge about instructional guidelines, **table 4** shows that, statistically significant improvement in patients' knowledge post instructional guideline regarding exercise and home activities, avoidance of extreme temperatures and avoidance of limb constriction (P value = 0.001*,0.002*, 0.000* as perspective). While, there was not significance among studied patients regarding (Avoiding measuring blood pressure from affected arm, skin care guidelines & infection prevention guidelines).

Regarding total satisfactory and unsatisfactory level of patients' knowledge pre and post instructional guideline **figure 1** shows that, statistically significant improvement in total level of patients' knowledge post instructional guideline than pre instructional guideline.

Table 5 shows that, statistical significant differences were found among patients included in the study post instructional guidelines comparing to pre instructional guideline regarding their physical, social, psychological and spiritual status functioning with (P value = 0.000**).

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Concerning total satisfactory level among studied patients regarding biopsychosocial functional status **figure (2)** shows that there was improvement regarding physical, social, psychological and spiritual functional status of studied patients post instructional guidelines.

Table 1: Frequency and percentage distribution of the study subjects according to demographic characteristics (N=60)

Demographic characteristics		N	%
1-Age (yrs.)	a-40 < 50 yrs	**31**	**51.7**
	b-≥ 50 yrs.	29	48.3
2-Marital status	a-Married	**53**	**88.3**
	b-Unmarried (Single/ Divorced /Widowed)	7	11.7
3-Residence	a-Urban	**42**	**70.0**
	b-Rural	18	30.0
4-Level of education	a-Not educated	16	26.7
	b-Read and write	**27**	**45.0**
	c-Educated	17	28.3
5-Working status	a-Working	12	20.0
	b-Not working (housewives)	**48**	**80.0**

Table 2: Frequency and percentage distribution of the studied sample according to medical data (N=60)

Medical data		N	%
1-body mass index (BMI)	a-Average body weight	14	23.4
	b-Over weight	**46**	**76.6**
2-Type of surgical procedure	a-Lumpectomy	7	11.6
	b-Modified radical mastectomy	**53**	**88.4**
3-Presence of co morbid diseases	a-Yes	16	26.6
	b-No	**44**	**73.4**
4-Co morbid diseases (N=16)	a-Diabetes mellitus	6	38.0
	b-Kidney disease	7	44.0
	c-Cardiovascular disease	1	6.0
	d-Neurovascular disease	1	6.0
	e-Tuberculosis	1	6.0
5- Menopausal status	Pre-menopausal	29	48.3
	Post-menopausal	**31**	**51.7**

BMI: Body mass index

Table 3: Comparison between patients' knowledge pre and post instructional guideline (N=60)

A-Regarding mastectomy	Pre instructional guidelines				Post instructional guidelines				t-test	p- value
	Yes		No		Yes		No			
	N	%	N	%	N	%	N	%		
1-Mastectomy meaning	13	21.6	47	78.4	49	81.7	11	18.3	9.40	0.000*
2-Mastectomy indications	15	25.0	45	75.0	36	60.0	24	40.0	5.63	0.000*
3-Mastectomy types	14	23.3	46	76.6	41	68.3	19	31.7	6.94	0.000*
4-Mastectomy complications	15	25.0	45	75.0	32	53.3	28	46.7	4.83	0.000*

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Risk factors that increase recurrence of breast cancer:										
5- Increased body weight	15	25.0	45	75.0	51	85.0	9	15.0	9.40	0.000*
6- Too much fat intake										
7- Unhealthy diet	47	78.3	13	21.7	58	96.7	2	3.3	3.63	0.001*
8- Lack of exercise										
9-Limb inflammation or infection	52	86.6	8	13.4	60	100	0	0	3.01	0.004*
	53	88.3	7	11.7	59	98.3	1	1.7	2.56	0.013*
	60	100	0	0	60	100	0	0	NC†	NC†

**: Significant at P ≤ 0.05.NC†: Not computed because the variable is constant*

Table 4: Comparison between patients' knowledge pre and post instructional guideline (N=60)

B)Regarding instructional guideline	Pre instructional guidelines				Post instructional guidelines				t-test	p-value
	Yes		No		Yes		No			
	N	%	N	%	N	%	N	%		
Skin care guidelines										
1-Avoiding exposures to minor scratches and injuries	60	100	0	0	60	100	0	0	NC†	
2-Good skin care	60	100	0	0	60	100	0	0	NC†	
Exercise and home activities										
3-Wearing compression garment during activities	27	45.0	33	55.0	40	66.7	20	33.3	3.63	0.001*
4-Doing light activities as they don't affect the incidence of lymphedema	40	66.7	20	33.3	55	91.7	5	8.3	3.22	0.002*
Avoidance of extreme heat										
5-Avoiding excessive heat and coldness	13	21.7	47	78.3	51	85.0	9	15.0	10.09	0.000*
6-Voiding exposure to high temperatures near the arm of mastectomy side	33	55.0	27	45.0	51	85.0	9	15.0	5.02	0.000*
Avoidance of arm constriction										
7-Avoiding wearing tight clothes over arms	27	45.0	33	55.0	59	98.3	1	1.7	8.21	0.000*
8-Applying compression garment on the arm of mastectomy side	17	28.3	43	71.7	45	75.0	15	25.0	7.18	0.000*
9- Avoiding measuring BP from affected arm	60	100	0	0	60	100	0	0	NC†	
Infection prevention guidelines										
10- Avoiding withdrawing blood samples from the arm of mastectomy side	60	100	0	0	60	100	0	0	NC†	

: Significant at P ≤ 0.05.** ***NC†: Not computed because the variable is constant

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Figure (1): Total Satisfactory and unsatisfactory level of patients' knowledge pre and post instructional guideline

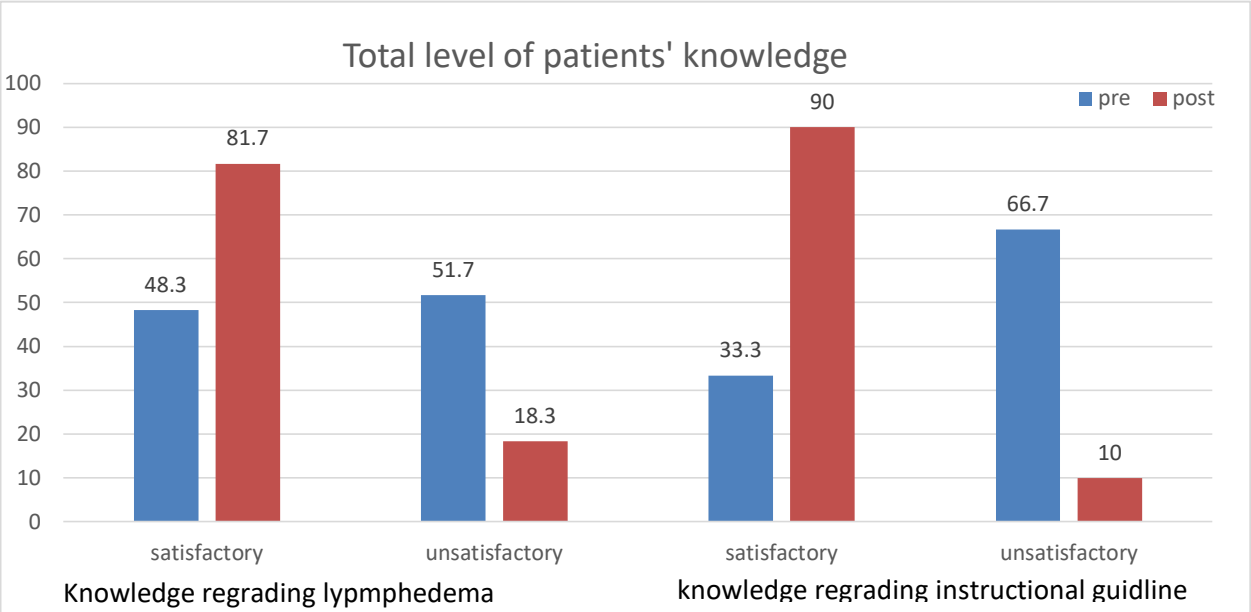
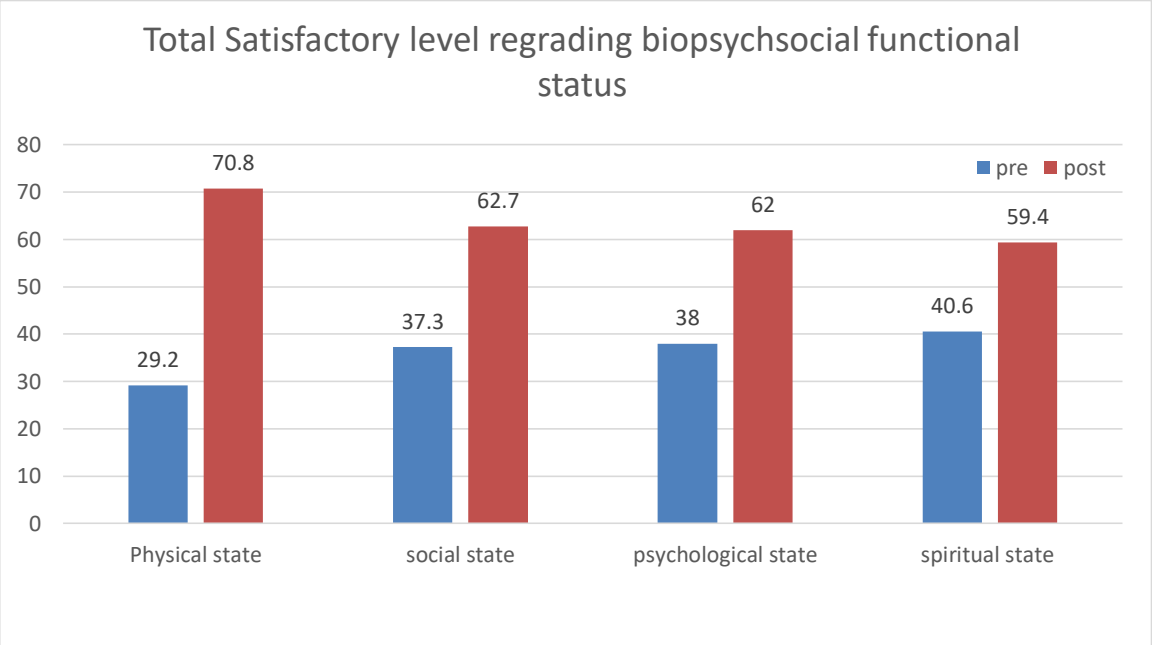


Table 5: Comparison between bio-psychosocial functioning status of the study subjects pre and post instructional guideline (N=60)

Biopsychosocial functioning status	Pre instructional guidelines				Post instructional guidelines				t-test	p-value
	agree		disagree		agree		disagree			
	N	%	N	%	N	%	N	%		
Physical state (ability to overcome the following health items)										
1-fatigue	60	100	0	0	60	100	0	0	NC†	
2-pain	21	35.0	39	65.0	41	68.3	19	31.7	5.43	0.000*
3- appetite changes	44	73.3	16	26.7	55	91.7	5	8.3	3.63	0.001*
4-sleep changes	51	85.0	9	15.0	60	100	0	0	3.22	0.002*
5-weight changes	60	100	0	0	60	100	0	0	NC†	
psychological state										
6-coping with disease.	7	11.7	53	88.3	36	60.0	24	40.0	7.42	0.000*
7-coping with treatment.	5	8.3	55	91.7	40	66.7	20	33.3	9.08	0.000*
8-contolling of life stressor or situations	60	100	0	0	60	100	0	0	NC†	
9- concentrate or remember things	40	66.7	20	33.3	59	98.3	1	1.7	5.22	0.000*
10-acceptance changes in appearance	36	60.0	24	40.0	45	75.0	15	25.0	3.22	0.002*
Social state										
11-receiving support	16	26.7	44	73.3	39	65.0	21	35.0	6.05	0.000*
12-martial relationship	53	88.3	7	11.7	53	88.3	7	53	NC†	
13- employment	21	35.0	39	65.0	41	68.3	19	31.7	5.43	0.000*
14- home activities	44	73.3	16	26.7	55	91.7	5	8.3	3.63	0.001*
15- financial burden	60	100	0	0	60	100	0	0	NC†	
Spiritual state										
16- religious activities	51	85.0	9	15.0	60	100	0	0	3.22	0.002*
17- spiritual activities	21	35.0	39	65.0	41	68.3	19	31.7	5.43	0.000*
18- sense a purpose of life	36	60.0	24	40.0	45	75.0	15	25.0	3.22	0.002*
19- satisfying with life	40	66.7	20	33.3	59	98.3	1	1.7	5.22	0.000*
20- feeling of happiness	5	8.3	55	91.7	40	66.7	20	33.3	9.08	0.000*

: Significant at P ≤ 0.05.*NC†: Not computed because the variable is constant

Figure (2): Total satisfactory level among studied patients regarding biopsychosocial functional status pre and post instructional guideline.



IX. DISCUSSION

Regarding to demographic characteristics of studied sample, the present study revealed that more than half of study sample their age between 40 to less than 50 years .this result in agreement with **Ho, Gernaat, Hartman, and Verkooijen, 2018** who stated that most of the study sample age less than 50 years in their study titled with "Health-related quality of life in Asian patients with breast cancer.

Concerning to marital status and work of the current study, the results stated that most of the patients included in the study were married and not working (housewives), this may indicates the load that experienced by the female patients through their role in caring for their families. One of the noticeable finding regarding residence, the current study showed that more than two third of the patients under the study were from urban areas this could be ascribed to setting of the current study that was conducted at the outpatient clinics of breast surgery affiliated at Ain Shams University hospitals.

The study finding revealed that less than half of the patients under study were read & write and this may reflect satisfactory level of knowledge post instructional guideline. This in the same line with **Shahed, Vanaki and Tahmasebi, 2016** who found that most of the studied sample in their study about "Effect of an Education Supportive Program Based on Martial Satisfaction in Mastectomy Patients Receiving Chemotherapy" were educated and had satisfactory level of knowledge post implementation of education Supportive Program

Concerning patients' medical characteristic data the current study revealed that, more than two third of the subjects included in the study were overweight. According to type of surgery that has been done for the studied subjects, it was found that majority of them had a modified radical mastectomy. Regarding the past medical history of the studied subjects, it was found that, more than two third of them were free from other health problems. In the same line also, the current study indicates that more than half of study sample were in post-menopausal period. From the researchers' point of the view all of the previous medical data of present study subjects may act as a risk factors to develop lymphedema post mastectomy.

The previous study findings with supported by **Yusuf, Hadi, Mahamood, Ahmad, & Keng, 2013** who defined a number of risk factors that consider the most common causes of increasing incidence and frequency of mastectomy incorporate expanding age, lower educational level, less activity in their study titled with Quality of life in Malay and Chinese women newly diagnosed with breast cancer and this is integrated with this study results.

In relation to patients' total level of knowledge about mastectomy and its instructional guideline, the results of this study showed that there is statistical significant improvement among studied patients post instructional guideline implementation. This finding was consistent with **Wang, et al, 2013**who reported that patients had high expectations about their health status.

The results of the present study revealed that patients' physical state had highest mean score post instructional guideline implementation, this study was in agreement with **Rahou, El Rhazi & Ouasmani, 2016** who stated that improvement quality of life regarding physical state of patients post mastectomy had better health outcomes

The results of the present study revealed that patients' psychological state had highest mean score post instructional guideline implementation, this study was in agreement with **American Cancer Society, 2017**who stated that psychological state is important, whereas patients were anxious, fearful & often have many unanswered questions. On the same line **Adams, Schmid & Rugo, 2017** added that psychological state for patients improved post lymphedema risk reduction educational guidelines implementation due to low stress as well as high expectations of patients in improving their quality of life.

Regarding to patients' social state, the present study reveals significantly highest mean score post instructional guideline implementation and this finding was congruence with **Czerniec, Ward, & Kilbreath, 2016** who mentioned that the effect of social state on functional recovery and well-being for those patients, reflected that there was a strong positive relationship between social support and physical functioning appear with increase social interaction of patients.

The study results also revealed that patients' spiritual state had the significantly highest mean score post instructional guideline implementation. This result may be related to the improvement in physical & psychological state. The previous result was supported by **Gillespie, Sayegh, Brunelle, Daniell & Taghian, 2018** who stated that spiritual state of patients has been shown to be associated with improving health outcomes. In conclusion, biopsychosocial functional status of patients undergoing mastectomy toward their physical, psychological, social and spiritual status improved post instructional guideline implementation. Also, the present study revealed that patients' knowledge had statistically significant improvement post instructional guideline implementation.

XII. CONCLUSION

Based on the findings of the current study, it can be concluded that that there was statically significant improvement in patients' knowledge from unsatisfactory to satisfactory level post instructional guideline implementation. Also, there was statistically significant improvement in all items of biopsychosocial functioning status physically, psychologically, socially and spiritually for patients undergoing mastectomy post instructional guideline.

Recommendation:

- The importance of conducting educational program including patients undergoing mastectomy that should be up-dated periodically in order to enhance health outcomes for these patients.
- The study should be replicated on large sample and different hospitals setting in order to generalize the results.

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