

Lymphedema Knowledge and Self-Care Practices among patients undergoing Breast Cancer Surgery

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Abstract: Lymphedema due to breast cancer surgery causes functional disability in the arm on the operated side, weakness, failure to fulfill daily activities and deterioration in body image. Functional disability caused by lymphedema restricts arm movements, reduces the healing capacity of the affected tissue and leads to pain **Aim:** the study aimed to assess lymphedema knowledge and self-care practices among patients undergoing breast cancer surgery . **Design:** A descriptive explanatory study design was utilized for data collection. **Setting:** This study was carried out at surgical and outpatient unit at Fayoum University Hospitals. **Sample:** A purposive sample composed of 80 patients undergoing breast cancer surgery . **Tools:** data collection tool included: Structured interview questionnaire, knowledge assessment questionnaire and self-care practices checklist. **Results:** majority of studied patient had unsatisfactory knowledge level of total knowledge regarding breast cancer related lymphedema and unsatisfactory self-care practices. **Conclusion:** the highest percentage of patient had unsatisfactory knowledge and self-care regarding breast cancer related lymphedema. **Recommendation:** Developing educational program for all admitted patients who will perform breast cancer surgery.

Key words: Lymphedema, knowledge, Self-care, breast cancer surgery

I. Introduction

Lymphedema is an abnormal and regional accumulation of protein-rich fluid in the interstitial space that can cause edema and chronic inflammation. It is clinically characterized by chronic swelling, localized pain, atrophic skin changes and secondary infections. Lymphedema remains a major source of morbidity for breast cancer survivors it is a life-long concern once it develops. The progressive nature and lack of effective therapies continue to challenge health workers. There is no cure for lymphedema, therefore specific nursing intervention and restoration of functioning of the arms in the affected side after mastectomy and axillary lymph node dissection is one of the important goals of the nurse (Fu et al ., 2022).

Lymphedema is a chronic health problem, which makes troublesome to both patients and health professionals, as lymphedema progresses, adipose deposition and fibrosis can result, it has a significant impact on activities of daily living, a changed view of self, reduced physical activity and lower quality of life. The oncology nurse plays a major role in the prevention, detection, and management of lymphedema. Identifying patients at risk who need intensive education about

self-care strategies to prevent the initial development of lymphedema which is the first step in lymphedema prevention. Teach patients how to use and care for compression garments, and work with the oncology team for appropriate referral for manual lymphatic drainage (Smith, 2020).

Patients with breast cancer related lymphedema need to conduct lifelong self-care activities to control the progression of swelling, manage lymphedema-associated symptom burden, and minimize long term negative outcomes. Post mastectomy patients should be included in self-care strategies which include compression bandaging, resistive or aerobic exercise, self-applied manual lymphatic drainage, intermittent pneumatic compression therapy, elevation of the affected extremity and weight management (Diab et al., 2021).

II. Significance of the study

Lymphedema is one of the main and most fearful complications of breast cancer and its therapies. The incidence of breast cancer related lymphedema has been hard to measure because of postponed onset of symptoms and absence of standardized diagnostic criteria. Recent studies showed that 50 -60% of women who treated the breast cancer by surgery develop lymphedema (Soliman, El Gahsh& Shehata, 2018). In Egypt, according to the National Cancer Institute, about 37.5% of all Egyptian female cancers are breast cancer patients. It has been estimated that by 2050 the incidence of cancer will be 3-fold that in 2013 (Abd El-Moneam& Elhosany, 2018). In fayoum University Hospital, the number of patients undergoing breast cancer surgery during the period (2018-2019) presented to the surgical department was approximately (104) cases (Statistics and Medical Record Department, fayoum University Hospital, 2020).

III. Aim of the study

The aim of the current study was to assess lymphedema knowledge and self-care practices among patients undergoing breast cancer surgery through:

- Assess patients' general knowledge regarding lymphedema
- Assess patients' knowledge regarding self-care practices .

Research question:

What are the level of knowledge and self care practices among patients undergoing breast cancer surgery?

IV. Subject and methods

Research design: A descriptive explanatory research design was used in this study. Defined as attempts to explore and explain while providing additional information about a topic. This is where research is trying to describe what is happening in more detail, filling in the missing parts and expanding our understanding. This is also where as much information is collected as possible instead of making guesses or elaborate models to predict the future - the 'what' and 'how,' rather than the 'why.'(Miller et al., 2020).

Setting of the study: This study was carried out at the surgical and outpatient unit at Fayoum University Hospitals, Fayoum governorate, Egypt. It is the only educational university hospital in Fayoum, and it receives patients from all areas of EL- Fayoum governorate. The surgical outpatient clinic consists of two sections; the first section consists of physician office, the second section is an examination room. The surgical department consists of three sections; the first sections for male and it includes five beds, the second section for female and it includes six beds, the third section for nurses. The nursing section includes an office, medication section and needed equipment.

Subject: A purposive sample of 80 adult patients who were recruited from the previously mentioned setting undergoing breast cancer surgery.

➤ **Sample size:**

Based on sample size equation 80 patients of breast cancer surgery will participate in the study. The sample size was calculated by adjusting the power of the test to 80% and the confidence interval to 95% with margin of error accepted adjusted to 5%.

$$n = \frac{N \times p(1-p)}{\left[\left[N-1 \times (d^2 \div z^2) \right] + p(1-p) \right]}$$

- P= 0.5
- N= Total population
- Z= Z value “1.96”
- D= Standard Error
- n= sample size

Sample criteria:

➤ **Inclusion criteria:**

- Patients from 18 to 60 years old.
- Patients who are posted breast cancer surgery with lymph node removal.

➤ **Exclusion criteria**

- Patients who are critically ill.
- Patients with any contraindication to the affected arm exercise (e.g venous thrombosis).

Tools of data collection

Data were collected using the following tools:

Tool I: Structured patients interviewing questionnaire

It was developed by the researcher based on relevant, current national and international literature (Simmons, 2015) which includes :

The first part concerned with the patient socio demographic data ; It composed of six ended questions age, gender, marital, education, occupation, nature of work

The second part concerned with health relevant information ; It composed six ended questions of which included the following: time of having breast disease, time of having cancer treatment, type of operation used, treatment option that specified, family history of cancer, having chronic disease.

Tool II: knowledge assessment questionnaire:

It was developed by researcher based on relevant, current national and international literature (Mahdy & Ali, 2016) which included three parts:



The first part concerned with assessment for patient general knowledge it composed of twenty eight closed ended questions of which include the following: six questions to assess patient knowledge about breast cancer, nine questions to assess patient knowledge about lymphedema, eight questions to assess patient knowledge about self-care and five questions to assess patient knowledge about exercise post breast cancer surgery.

The second part concerned with assessment for patient knowledge regarding routine self-care practices it composed of seven parts include forty one closed ended questions which include the following: Ten questions about routine self-care practices of the limb skin, four questions about routine self-care practices to reduce pain in the affected limb, four questions about routine self-care practices about usage of compression bandage, seven questions about routine self-care practices about exercises, three questions about routine self-care practices about safe usage of drugs, six questions about routine self-care practices about healthy diet.

The third parts concerned with assessment for patient knowledge regarding self-care practices in case of complications, it composed of two parts include eight questions. Four questions about self-care practice in the event of burn, four questions about self-care practice in the event of burn.

Scoring system:

Regarding scoring of women's knowledge assessment: one grade was given for the correct answer and zero for the incorrect answer the scoring level of patients' knowledge was used as follow based on statistical analysis:

- Satisfactory level of knowledge $\geq 85\%$.
- Unsatisfactory level of knowledge $< 85\%$.

Validity:

Face validity is a subjective decision based on the researcher's feelings, thoughts, and intuition about the functioning of the measuring instrument. It is the simplest and least precise method of determining validity which relies entirely on the expertise and familiarity of the assessor concerning the subject matter, it is done by three expertise in medical surgical nursing and two surgical oncology medical expertise. Content validity as a qualitative form of validity that evaluates whether the expressions contained in the measuring instrument represent the phenomenon intended to be measured (Sürücü & Maslakçi, 2020).

Reliability:

Reliability refers to the stability of the measuring instrument used and its consistency over time. Instrument reliability means that the instrument consistently reflects the construct that it is measuring by giving the same score if used over time or across multiple administrations. The Cronbach's alpha model, which is a model of internal consistency, was used to test tool reliability. Reliability factor of the second tool was 0.93. Statistical equation of Cronbach's alpha reliability coefficient normally ranges between 0 and 1; higher values (more than 0.7) denote acceptable reliability (Al Jaghsi et al., 2021).

V. Ethical considerations:

An approval was obtained from a scientific research ethics committee of the faculty of nursing at Helwan University and oral informed consent was obtained from the study subjects individually before starting the study. The aim and objectives of the study was clarified to the patients included in the study by the investigator. Participants were assured that

anonymity and confidentiality would guarantee. Patients were informed that they are allowed to choose to participate or withdraw from the study at any time. Ethics, culture, values were respected..

VI. Pilot study :

This was done in order to test feasibility and applicability of these tools and estimate the time required for data collection. Before performing the actual study, a pilot study was carried out on 10 % (8 patients) of the total study subject. Some modifications on tools were done based on pilot study. Some statements were omitted, added or rephrased, and then the final forms were developed. Subjects included in the pilot study were excluded from the main study group.

VII. Field work

- An approval was obtained from a scientific ethical committee of the faculty of nursing at Helwan University.
- An official permission was obtained from the director of the fayoum University Hospital in which the study was conducted.
- The purpose of the study was simply explained to the patients or to their families who agree to participate in the study prior to any data collection.
- Written consent was obtained from each participant prior to data collection after explaining the aim of the study .
- Sampling was started and completed within twelve months from January 2021 to the end of February 2022
- The investigator attended the hospitals 2 days per week. First, the researcher introduced herself to the patients in surgical units and the researcher explained the aim and objectives of study to the participant. Structured interview was done with every participant to assess their knowledge and self care practices .

VIII. Statistical analysis:

Statistical presentation and analysis of the present study was conducted, using Pearson Correlation test, ANOVA test and Chi-square tests. A significant level value was considered when p- value <0.05* while p- value >0.05 indicate non-significant result.

IX. Results:

Table (1): frequency and distribution of demographic characteristics among the studied patients undergoing breast cancer surgery (N=80).

Items		
Age		
Mean \pm SD	44.8 \pm 9.9	
Range	28-63	
Marital status		
Single	47	58.8%
Married	33	41.2%

Education level		
Illiterate	36	45%
Read and write	27	33.8%
Basic qualification	9	11.2%
University	8	10%
Occupation:		
Not Occupied	53	66.3%
Occupied	27	33.7%
If work		
Manual work	16	59.3%
Administrative work	11	40.7%

Table (1) showed the demographic characteristics of the studied patients. Regarding to age, the mean age of study group was (44.8±9.9) years old ranged between (28 and 63) years old. Marital status 58.8% were single versus 41.2% were married. As regards education level, 45% were illiterate and 10% were educated to university level. Among study patients, 33.7% had an occupation with 59.3% had a manual work and 40.7% had an administrative work.

Table (2) Mean ± SD of the studied patient' general knowledge regarding lymphedema post breast cancer surgery (N=80).

Items	No. questions	Mean ± SD
About breast cancer	6	0.94±1.2
About lymphedema	8	1.7±2.8
About self-care	8	2±2.5
About exercise	5	0.6±1.2
Total satisfactory knowledge score	27	5.3±6.8

Table (2) revealed that; total knowledge score among studied patients as regarding knowledge breast cancer, lymphedema, self-care and exercise was 5.3±6.8.

Table (3): Mean ± SD total scores regarding self-cares practices among the studied patients undergoing breast cancer surgery (N=80).

Items	Mean ± SD
Total satisfactory score regarding routine routine self-care practices	2.5±5.8
Total satisfactory scores regarding self-care practice in case of complication	0.19±0.69

Table (3) revealed that; total routine self-care practice score was 2.5±5.8 in addition to total self-care practice in case of complication was 0.19±0.69.

Table (4): Relation between total knowledge and practice among the studied patients undergoing breast cancer surgery (N=80).

Variables	Knowledge score	Practice score
	Mean ± SD	Mean ± SD
Before	2.4±4.03	7.7±12.01
T- test	-22.6	-17.1
P-value	<0.001*	<0.001*

* Statistical significant p-value ≤0.05

Table (4): showed that was high statistically significant relation between knowledge and practice among the studied patients with $p < 0.01$.

Table (5): Relation between total knowledge and educational level among the studied patients undergoing breast cancer surgery (N=80).

Education level	Knowledge score	
	Mean	SD
Illiterate	0.50	0.7
Read and write	1.8	3.4
Basic qualification	8.3	6.9

University	7.3	2.8
F test	10.8	
p-value	<0.001*	

* **Significant at P -Value < 0.05

Table (5): Illustrated that there was a statistical significant relation in knowledge scores among the studied patients with p-value <0.001.

Table (6): Relation between total practice and educational level among the studied patients undergoing breast cancer surgery (N=80).

Education level	Practice score	
	Mean	SD
Illiterate	8.1	14.9
Read and write	7	10.5
Basic qualification	10.5	9
University	5.7	6.6
F test	0.12	
p-value	0.9	

*Significant at P -Value < 0.05

Table (6): illustrated there was no statistical significant relation in practice scores and different education levels of patients with p- among study with p-value >0.0.

X. DISCUSSION

Concerning the demographic characteristics of the studied nurses; in the current study; most of the studied patients were aged less than 40 years old, most of them were single and majority of them were un occupied. In the same line **Hamdy et al., (2018)** with 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. This finding agreed with **Awad and Abd-El Wahab, (2022)** in the study of "The Effect of Structured Training Program on Health Needs and Practices of Women Undergoing Modified Radical Mastectomy" revealed that the two thirds of the studied women were above 40 years , were single and un occupied.

Regarding medical history the present study results revealed that the majority of the studied women had duration of

illness less than one-year ,the majority of studied women had negative family history to cancer, more than half of the studied women had chemotherapy in the same line **Hawash et al., (2018)** in a study of "Effect of Nursing Rehabilitation Program on the Prevention of Lymphedema among Post Mastectomy Women" stated that the highest percentage of the studied women had a negative family history. However, these results were inconsistent with **Hashem et al., (2020)** showed that the majority of the study subjects had a positive family history of breast cancer with first degree relation (mother). **Also, Fu et al., (2022)** showed that the majority of the sample was currently on chemotherapy.

Concerning the patient' knowledge; the current study illustrated that the highest percentage in the studied patients has unsatisfied total knowledge regarding breast cancer, lymphedema, self-care, post-surgery exercises. These findings agreed with **El-Araby et al., (2020)** who studied "Knowledge and Self Care Practices for Women with Breast Cancer Related Lymphedema" reported that the majority of the studied women had unsatisfactory knowledge about BC, BCRL and LE self-care practices. This could be interpreted by that, the lack of knowledge about BCRL among health care providers, as the physician and the nurse focused on providing brief guidelines just before discharge and most of nurses didn't have knowledge about LE and its prevention and management.

In the current study; illustrated that the highest percentage in the studied patients in both study and control groups have unsatisfied routine self-care practices including reduce lymph swelling, skin care, to overcome the pain, usage of compression bandage, usage of drug and healthy diet These findings agreed with **Hussein, (2017)** in the study "Improving Nurses' Performance to Meet Satisfaction Patients Undergoing Breast Cancer Surgery" displayed that slightly less than one quarter of the studied women's information source was the physician and media. While, more than one quarter of their information source was the internet and the minority of them gained their information from the nurse. This might be due to lacking of information provided by health care team about BCRL. In addition, educated women could get more information sources about their condition through internet or media than uneducated women so their practices were unsatisfactory.

Also, in the current study; it is noted that that the highest percentage in the studied patients have unsatisfied total knowledge regarding self-care practices in case of complications that was in the same line with **Sayed et al., (2017)** who conducted " Informational Needs among Women with Newly Diagnosed Breast Cancer: Suggested Nursing Guidelines:" showed that most of patients with breast cancer report having no knowledge about disease process or its complications, also supported that patients are in need for structured nursing guidelines to enhance their knowledge level.

XI. Conclusion:

On the light of the current study results, it can be concluded that, the highest percentage of patient had un satisfactory knowledge and un satisfactory self-care practices regarding breast cancer related lymphedema, there is a need for special educational program for all admitted patients who will perform breast cancer surgery to provide optimum eye care.

XII. Recommendations:

- Replication of the study in different settings in Egypt on larger probability samples to help in generalizability of findings.
- More researches are needed to be applied to evaluate the effectiveness of applying educational program regarding self-care for breast cancer related lymphedema on patients' outcomes.



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