

Effect of Educational Nursing Program on Performance and Self-efficacy of Females Undergoing Mastectomy

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Abstract

Background: Breast cancer and its treatment lead to physical and psychological problems. So, nurses are responsible to identify patients' needs, then identify the appropriate nursing diagnosis and initiate plans for care based on such needs. **Aim:** To evaluate the effect of educational nursing program on performance and self-efficacy of females undergoing mastectomy. **Patients and Methods:** A quasi-experimental research design was utilized in this study. It was conducted in the general surgery wards, and follow up was carried out in oncology and general surgery out patient clinics at Assiut University Hospital and South Egypt Cancer Institute. A convenient sample of sixty adult female patients undergoing mastectomy, their ages ranged from 20 to 65years old . Patients were divided into two equal groups (study and control) thirty patients for each. **Tools:** Three tools were utilized in this study for data collection; **Tool (I):** Knowledge assessment questionnaire, **Tool (II):** Observation checklist, and **Tool (III):** General self-efficacy scale. **Results:** A highly statistically significant improvement was found in the study group regarding their performance and self efficacy post-program implementation than pre-program with P-value <0.001**. **Conclusion:** Application of educational nursing programs had a positive effect on performance and self-efficacy of females undergoing mastectomy. **Recommendations:** distribution of the educational booklet in the general surgery department and clinic for females undergoing mastectomy based on their needs assessment to improve their outcomes.

Keywords: Knowledge, Mastectomy, Practice & Self- efficacy.

Introduction

Breast cancer is the second most common cancer overall and is the most common cancer in women worldwide. There are about 1.38 million new cases and 458,000 deaths from breast cancer each year (Katkuri & Gorantla, 2018). In Egypt, the highest incidence rates for cancer among females were breast cancer (32.0%). It has been estimated that by 2050, the incidence of breast cancer will be 3-fold than in 2013 (Ibrahim, 2014).

Mastectomy or breast-conserving surgery is a cornerstone of disease management for stage I-III breast cancer. Mastectomy is a term used to describe a variety of surgical procedures for the treatment of breast cancer that involves the partial or complete removal of the breast tissue. There are many different types of mastectomy identified as simple or total, modified radical, radical, subcutaneous and nipple-sparing mastectomy which followed by chemotherapy, radiotherapy, hormonal therapy or combination of therapies (Miller, 2016).

Unfortunately, patients after mastectomy have to face a series of postoperative complications, including seroma formation , wound infection, hemorrhage,

arm pain, stiffness, loss of strength, lymphedema and compromised range of motion of the shoulder, arm, and cervical spine, collectively recognized as upper-quadrant dysfunction. Particularly when surgery is combined with other therapies, patients may also experience more systemic impairments such as pain, fatigue, and decreased ability to participate in activities of daily living (Daniel, et al., 2017)

Additionally, women post breast cancer treatment may also experience feelings of diminished self-efficacy related to functional deficits resulting from their physical limitations. Self-efficacy is the ability to manage one's situation and a personal factor unique to an individual may serve to support or hinder recovery. For instance, those with higher levels of self-efficacy may have strong expectations for recovery and feel they can exercise control over threatening situations, whereas a women with low self-efficacy may have greater difficulty in seeking out, accessing rehabilitation services and are subject to stress and depression (Azizi Fini et al., 2011). Patients expressed the need for education about treatment-related impairments as well as information to help them return to exercise and activity.

Nurses are in a prime position to encourage and influence women to be aware about breast cancer and to be involved in their own health. Nurses can recognize the needs of patients and be effective in controlling disease complications as well as enhancing the quality of life of such group of patients. The nurse as educator must continually assess the patient's understanding, which is achieved through face-to-face interactions, answering of the patient's questions and observation decision-making process (Song et al., 2016).

Nurses have a major role in managing patients with mastectomy before and after the operation and later on at the follow-up periods. Preoperative nursing care includes providing education and preparation for the patients who are going to perform surgical treatments, in order to reduce fear and anxiety, as well to improve their coping ability of the patients, and promoting their decision-making ability. The postoperative nursing interventions include relieving pain and discomfort, asking patients doing regular arm exercises, managing postoperative sensations, promoting positive body image, promoting positive adjustment and coping ability. As well help the patients to apply stress management mechanism, nutritional support, monitoring and managing potential complications, link to the home- and community-based care, teaching patients self-care and maintain patients' satisfaction level with the care provided (Hinkle, 2014)

Significance of the study

In Egypt, breast cancer is the most common cancer among women, representing 18.9% of total cancer cases (35.1% in women and 2.2% in men) (Hasan et al., 2014) According to Assiut university hospital records from (2017 to 2018), three hundred breast cancer patients were admitted to the general surgery department, and modified radical mastectomy was the first treatment of decision for them. Most of them complained of a lack of knowledge and practise regarding their care accompanied by diminished self-efficacy. So this study is conducted to help such a group of patients to improve their knowledge, practice and their self-efficacy.

The aim of this study was

To evaluate the effect of educational nursing program on knowledge, practice and self-efficacy of females undergoing mastectomy.

Research Hypotheses

1. The post mean knowledge and practice scores of females undergoing mastectomy who will receive the educational nursing program will be higher than those who will not receive such program.

2. Self-efficacy of the female's group who undergoing mastectomy and receiving the educational programs will be higher than those who will not receive the program.

Patients & Method

Research design

A quasi-experimental research design (study and control group) was utilized in this study.

The setting of the study

The study was conducted at the general surgery wards, and follow up was carried out in the oncology and general surgery outpatient clinic at Assiut University Hospital and South Egypt Cancer Institute.

Study sample

A convenient sample of sixty adult female patients, their ages ranged from 20 to 65 years old undergoing mastectomy was included in the study from the time of admission in the different general surgery wards, through a **follow-up period of three months (before discharge and 3 months postoperatively)**. Patients were divided into two equal groups (study and control), 30 patients for each. The study group was received educational nursing program and routine hospital care while the control group was received the routine hospital care only.

Sample size

The sample size was determined statistically by power analysis equation. The calculation was done considering the following: Type I error with significant level (α) = 0.5, Type II error by power test (1-B) = 80% and found the minimum sample size was 26 patients for each group. Although the minimum number of 52 patients was required by the power analysis equation, the researcher had obtained 60 patients in this study because the non-response rate was expected to be lost from the subjects.

Tools of data collection

Based on the recent and scientific researches, data was collected by the following three tools:

Tool I: Knowledge assessment questionnaire: This tool was developed by the researcher based on current national and international literature review to assess demographic data, patient's medical data, patient's knowledge. It consisted of three parts:

Part (1): Patient's demographic characteristics; included age, marital status, occupation, level of education and residence.

Part (2): patient's medical history: It included items to assess present and past health history.

Part (3): Assessment of patient's knowledge. This part was used to elicit knowledge of patients regarding the following; basic information about mastectomy, postoperative and home exercises, nutrition, ways to minimize postoperative pain, anxiety, stress, wound care and follow up schedule.

It was composed of 30 questions. Two scores were given for each correct answer, one for the incorrect answer and zero for no answer. For each area of knowledge, the scores of the items were summed up and the total score divided by the number of the items. These scores were converted into a percent score. The total knowledge was considered satisfactory when the percent score was 60% or more, and unsatisfactory if it was less than 60%.

Tool II: Observation checklist: It was developed by the researcher to assess patient's practice for the following; deep breathing exercises, progressive muscle relaxation exercise, and postoperative exercises, breast self-examination and wound care. The practice was classified into correctly, incorrectly and not done. Two marks were given for performing the step correctly, 1 mark when the patient performed the step incorrectly and zero mark when the patient didn't perform it at all. The points were summed up and converted into a percentage. A total score of 60% or higher was considered adequate practice and it was considered inadequate practice when total score is less than 60%.

Tool III: General self-efficacy scale (GSES)

It was developed by (Schwarzer and Jerusalem, 1995) to assess a general sense of perceived self-efficacy to predict coping with daily hassles as well as adaptation after experiencing all kinds of stressful life events. This scale contains 10 items on a Likert scale, from "it is not correct at all" (1 point), "hardly true" (2 point), "moderately true" (3 point) to "it is exactly correct" (4 points). The total score is calculated by finding the sum of all items. For the GSES, the total score ranges between 10 and 40, with a higher score indicating high self-efficacy.

Tools validity and reliability

Data collection tools were submitted to a group of five experts in medical- surgical nursing and general surgery at Assiut University to test the **tools content validity**. Some modifications were done according to the experts' judgment on the clarity of sentences, appropriateness of content and sequence of items.

The reliability of the tools was statistically tested using Cronbach's coefficient alpha test. The tools proved to be internally reliable, with a Cronbach's coefficient alpha test of 0.868.

A pilot study was conducted on 10% (6) patients to evaluate the applicability and clarity of the tools, estimate the time needed for data collection, and test the feasibility of conducting the research. After analyzing the pilot study results, a slight modification was done accordingly. Those patients were excluded from the study subjects and another 6 patients were selected to replace them.

Ethical considerations

The study was affirmed by the faculty ethics committee. The study followed common ethical principles in clinical research. Oral consent was obtained from every patient to participate in the study. The study maneuvers didn't entail any risk to patients. The participants have the right to withdraw at any time. Confidentiality and anonymity of the subjects were assured. Study subject privacy was considered during data collection.

Procedure

Administrative approval

Official endorsement and administration permission were adopted from the head of the general surgery department and outpatient surgery clinic at Assiut University Hospital and South Egypt Cancer Institute.

Assessment phase

Baseline data were collected from females and their current medical records in both control and study groups before operation by using study tools I, II, III. To avoid transmission of the intervention to the control group, data were collected first from the control group over seven months. After reaching 30 patients for the control group, data collection stopped and data from the study group started. Data collection for the study group took 6 months to complete.

Planning phase

An Arabic educational booklet contained diagrams and pictures has been developed by the researcher based on determined needs, baseline measures, relevant literatures and researches. It is completed and revised within 4 months.

Preparation of educational Nursing program for females undergoing mastectomy:

The educational Nursing program for females undergoing mastectomy was a package composed of a simple Arabic language booklet with illustrated photos, moreover, **the patients in the study group** were provided with a video tab show exercises and breast self-examination. The **booklet** was prepared based on patients need assessment after analyzing the pre assessment data collection. The booklet included the following four parts ; first part was simple explanation about the breast cancer, mastectomy operation (definition, indications, types, and complications). The second part was about the rehabilitation exercises that were classified by time as follows: 1st week; arm lifts, pump elbow up, shoulder shrugs and circles, and Shoulder blade squeeze. After drain removal; wand exercise, elbow winging, shoulder range of motion, Wall hand climbing, rope turning, rod lifting. Before discharge, instructions included teaching patients about weight-bearing exercises. The third part included general recommendations on pain management, sleeping,

nutrition, and ways to decrease anxiety as a relaxation technique, progressive muscle relaxation exercise and how to adapt to body image. The fourth part included discharge instructions about wound care, signs of infection, breast self-examination and follow up visits.

Implementation phase

This phase was done for the study group only where the researcher met the patients after collecting the baseline data, then schedule the educational sessions (4 sessions) 45 minutes to one hour each. All session were done preoperatively after filling all tools and then the researcher visited patient every day to encourage and observe the patient for performing exercises and following all instructions.

The first session contained teaching patients about mastectomy (definition, types, indication, and complications).

The second session contained training on the basic postoperative care (deep breathing and progressive muscle relaxation exercise) and exercises performed from the first to seven days postoperatively.

The third session included clarification on the exercises which would perform after the drain and suture removal.

While the **fourth session** included instructions for wound care, nutrition, sleeping, measures to prevent or control lymphedema, and breast self-examination. The researcher used powerpoint presentation with clear information, colored pictures and the contents

were printed in a booklet in a simple Arabic language and provided for the patients as guidance.

Evaluation phase

This phase was implemented for the study group with the same tools (I, II, III). This phase was performed 2 times after application of educational nursing program (before discharge and three months postoperatively). Most of the patients discharged from hospital one week after surgery. The researcher was visiting the outpatient clinics after arrangement with the patients through phone calls for follow up visit. The control group received the routine nursing care provided by the hospital staff. Patients were reassessed by the researcher; before discharge and three months after the surgery using tools I, II ,III.

Statistical analysis

The data were tested for normality using the Anderson-Darling test and for homogeneity variances before further statistical analysis. Categorical variables were described by number and percent (N, %), where continuous variables described by the mean and standard deviation (Mean, SD). Chi-square test and Fisher exact test used to compare categorical variables where compare between continuous variables by t-test and ANOVA test. A two-tailed p < 0.05 was considered statistically significant. We are used a person correlation to appear in the association between scores. All analyses were performed with the IBM SPSS 23 software.

Results

Table (1): knowledge score levels for both study and control groups before educational nursing program, before discharge and 3 months post-program (n=60).

Knowledge levels	Before program				P. value	Before discharge				P. value	3 months Post-program				P. value
	Study group (n = 30)		Control group (n = 30)			Study group (n = 30)		Control group (n = 30)			Study group (n = 30)		Control group (n = 30)		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
Satisfactory	5	16.7	6	20	0.739 ns	27	90	7	23.3	0.001**	26	86.7	7	23.3	0.001**
Unsatisfactory	25	83.3	24	80		3	10	23	76.7		4	13.3	23	76.7	

* **=statistically significant difference (p<0.01)

*=Statistically significant difference (p<0.05)

Table (2): Comparison between the study and control group regarding their practice score levels before educational nursing program, before discharge and 3 months post-program(n = 60).

Practice levels	Before program				P. value	Before discharge				P. value	3 months Post-program				P. value
	Study group (n = 30)		Control group (n = 30)			Study group (n = 30)		Control group (n = 30)			Study group (n = 30)		Control group (n = 30)		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
Adequate	0	0.0	3	10	0.119 ns	21	70	3	10	0.001**	23	77	5	17	0.001**
Inadequate	30	100	27	90		9	30	27	90		7	23	23	83	

n.s. = Not significant

* **=statistically significant difference (p<0.01)

Table (3): Relation between knowledge levels and practice levels for the study group before educational nursing program, before discharge and 3 months post-program (n=60).

Practice levels	Knowledge levels														
	Before program					Before discharge					3 months Post-program				
	Unsatisfactory (n=25)		Satisfactory (n=5)		P. value	Unsatisfactory (n=3)		Satisfactory (n=27)		P. value	Unsatisfactory (n=4)		Satisfactory (n=26)		P. value
	N	%	N	%		N	%	N	%		N	%	N	%	
Inadequate	25	100	5	100	-	3	100	6	22.2	0.005**	4	100	3	11.5	<0.001**
Adequate	0	0.0	0	0.0	-	0	0.0	21	77.7	**	0	0.0	23	88.4	**

* **=statistically significant difference (p<0.01)

Table (4): The total mean score of general self-efficacy scale before educational nursing program, before discharge and 3 months post-program for the study and control groups(n = 60).

Times of evaluation	Mean score of general self-efficacy scale		P. value
	Study group (n=30)	Control group (n=30)	
	Mean±SD	Mean±SD	
Before program	12.37±2.98	13.47±3.08	0.165 ns
Before discharge	35.13±2.32	22.03±4.24	<0.001**
Three-month post-program	37.27±3.23	21.23±8.54	<0.001**

n.s. = Not significant * **=statistically significant difference (p<0.01)

Table (5): Correlation between patients' demographic variables and total general self-efficacy score before educational nursing program, before discharge and three months post-program for the study group(n = 60).

Demographic variables	Total score of general self-efficacy scale	
	r	P. value
Before program		
Age	0.028	0.882 ns
Marital status	0.133	0.485 ns
Educational level	0.275	0.142 ns
Occupation	0.028	0.885 ns
Residence	0.258	0.169 ns
Before discharge		
Age	0.364	0.048*
Marital status	0.048	0.801 ns
Educational level	0.362	0.049*
Occupation	0.46	0.011*
Residence	0.235	0.210 ns
3 months post-program		
Age	0.565	0.001**
Marital status	0.119	0.532 ns
Educational level	0.491	0.006**
Occupation	0.592	0.001**
Residence	0.034	0.859 ns

*=Statistically significant difference (p<0.05) **=statistically significant difference (p<0.01)

n.s. = Not significant

The results revealed that; the age of the study and control groups ranged between 48-58 years old. the majority of patients in both groups were married (53.3%), were uneducated (80.0% and 66.7% respectively). Concerning patients' occupation more than two-thirds of patients were not working (73.3% and 70.0% respectively).

Also, the results showed that; the majority of patients in the study and control groups (53.3%, 60.0% respectively) had left breast cancer. About two-thirds of patients (66.7%) in the study group and more than half (56.7) in the control group were having breast lump or mass as a current complaint. Also, the highest percentage in both groups (83.3%, 80.0% respectively) and (70.0 % and 63.3 % respectively) their duration of illness were less than one year and had stage II breast cancer. Finally, (73.3%) of the study group and (40.0%) of the control group had a positive family history of breast cancer (mother).

Table (1): Reported that; before the application of the educational nursing program, the highest percentage of patients in the study and control group had an unsatisfactory level of knowledge (83.3% and 80% respectively). Also, A statistically significant difference was found between the study and control groups after application of the program (before discharge as well as 3 months post-program) with p. value =0.001**.

Table (2): Stated that; all patients in the study group and most of the patients in the control group (100% and 90% respectively) had an inadequate level of practice before application of the educational nursing program. While before discharge and 3 months post-program; the control group still had an inadequate level of practice and about two-thirds of the study group became having adequate practice level with statistically significant difference (P=0.001**) before and after application of the program.

Table (3): Showed that; there was a statistically significant relationship between knowledge levels and practice levels of the study group after implementing of program before discharge as well as 3 months post-program with P.value= (0.05**and <0.001** respectively).

Table (4): Illustrated that; there was no statistically significant difference between the study and control groups before the application of the program with P.value = 0.165. While a statistically significant difference was found between both groups before discharge as well as 3 months post-program.

Table (5): Indicated that; there was a positive correlation between patient's age, educational level, occupation and total general self-efficacy scale score before discharge and 3 months post-program. This means that younger, highly educated and employed

patients had good self-efficacy than older, uneducated and unemployed patients and vice versa.

Discussion

Breast cancer is the most common type of malignancy among women worldwide (Manoochehri, 2018). Mastectomy is a standard treatment option for breast cancer (Magtanong et al., 2018). Breast cancer and its treatment result in physical and psychological problems. So, it is the responsibility of the nurse to identify the breast cancer patient's needs, make an appropriate nursing diagnosis and initiate plans for care (Taha et al., 2013). In this respect, the main concern of the present study was to evaluate effect of nursing educational programs on knowledge, practice, and self- efficacy of females undergoing mastectomy. From the demographic characteristics of the studied sample, the present study revealed that the mean age of the study and control groups was 48.77 ± 9.1 years. This result finding was in the same line with (Salehi et al., 2017) who mentioned that the mean age at the time of diagnosis was 48.8 ± 12.01 . Also, (Nessa et al., 2018) reported that the highest percentage of studied women was above 40 years. This finding may be justified that aging process is one of the most important risk factors of breast cancer because of the longer life expectancy, changes in reproductive patterns in women over 40 years, menopausal hormonal use, rising prevalence of obesity, and genetic damage(mutations) in the body at this age.

As regard educational level; the current study revealed that most of the study and control groups were uneducated. This finding was supported by (Sayed et al., 2017)who pointed out; the highest percentage of the studied groups were illiterates. This can be interpreted by the educated women can get more information sources about their condition through the internet or media than illiterate women. Also, educational level can highly affect patients' perception of the tumor, thus influencing the level of early detection, diagnosis, and treatment. This finding contradicts (Ahmed and Dawood, 2017) who found that two-thirds of the studied sample were secondary educated. Also was disagreed with (Beiki et al., 2012) who displayed that women with the highest educational level had a significantly higher incidence of breast cancer compared to those with lower education. In addition, women account for 69%of the total number of illiterate people in Egypt and all samples of the study were women.

Regarding the marital status and occupation; the present study clarified that more than half of patients in both groups were married and housewives, this could be attributed to their exposure to household insecticides and detergents that increase breast cancer risk. This result was similar to (Hoffmann, 2018)

who mentioned that, the majority of the women in both groups were married, and most of them were housewives. This finding was in disagreement with the result by (Soliman et al., 2018) who revealed that the majority of the study group was widowed and near half of the study group had administrative work. Also, this finding contradicted (Hayes et al., 2012) who explained that unmarried and nulliparous had an increased risk for developing breast cancer due to prolonged or repeated exposure to estrogen hormones.

Based on the results of the present study, the medical data between the study and control groups were compared and no significant differences were noted, the present study showed that a new breast lump and recent nipple retraction were found to predominant complaint among breast cancer patients. This finding was in accordance with (Wachira et al., 2017) who mentioned that the majority of the studied sample more likely to report having felt a breast lump.

Concerning the stage of breast cancer; the study's findings showed that more than half of both control and study groups were diagnosed with breast cancer at stage II. This result was in harmony with (Musarezaie and Zargham-Boroujeni, 2015) who emphasized that a higher percentage of the studied group were diagnosed at the second stage. This result could be due to that the majority of the sample were illiterates and were not aware of breast self-examination for early detection of cancer at the first stage. Another contradicting point of view is that most of the sample were married and were not embarrassed to seek medical advice and examination and take support from their husbands, thus the disease was discovered at stage II.

Regarding family history; the current study displayed that most of both study and control groups had a positive family history. This means that specific genetic abnormalities that contribute to the development of breast cancer have been inherited (passed from parent to child). This finding was agreeing with the findings of (Hagrass et al., 2012), who reported that a higher percentage of studied patients had positive family history especially first relative degree related to genetic factors. However, (Hawash, 2018) contradicted this study and discovered that the highest percentage of their patients had a negative family history.

Concerning the patients' knowledge; the present study revealed that, the majority of patients in the study and control groups had an unsatisfactory level of knowledge before the application of the nursing educational program. According to the opinion of the researcher, the level of knowledge was insufficient due to in availability of training programs, lacking continuous educations and most health care providers

did not routinely counsel women or providing them with written information about mastectomy and self-care practice.

However, after implementing the educational nursing program, the study group patients had a highly significant improvement than those of control with all items of knowledge. This might be due to health instructions given to study patients using different teaching strategies as lectures, discussion, and colored booklet. Also, the researcher emphasized the importance of the patient's knowledge. This study result was in agreement with (Soliman et al., 2018) who showed that there was a statistically significant difference regarding the mean knowledge score at three different intervals pre, post and follow up intervention regarding breast cancer as a disease as well as post-mastectomy exercises.

Likewise (Bahgat et al., 2016) supported the previous finding as they proved that there was a significant difference between the study groups I and II pre and post- protocol of care. Additionally, this finding similarly with (Fu et al., 2010) who found, in the study entitled "The Effect of Providing Information about Lymphedema on the Cognitive and Symptom Outcomes of Breast Cancer Survivors", that patients who received information reported significantly a higher score in the knowledge test.

Regarding the patient's practice; the present study revealed that the majority of the study and control groups had an inadequate level of practice before application of the educational nursing program. While the study group showed significant compliance at a two-period interval of follow up (before discharge and 3 months post-program). (Soliman et al., 2018) supported this result as they demonstrated that the majority of the patients had adequate self-care practices and arm morbidity minimized during the follow-up period.

In this study the patients were motivated to use and maintain arm and shoulder exercises through teaching the benefits of the exercises, which in turn, motivated them to apply and adhere to regular exercise, learning support by the researcher and effective learning materials (booklet, and poster), also family support while exercising, all contributed on the patients to comply with the exercises program.

In addition, the study findings were consistent with (Qalawa et al., 2011) who showed that non-compliance with exercises also significantly declined following the implementation of the instructional scheme. Also, the current results accepted with (Mahdy and Ali, 2012) who observed that the majority of the study patients showed a good maintenance level of self-care practices regarding indoor arm care, outdoor arm care and total self-care

practice at one-month post-discharge with a slight decrease at three months post-discharge.

Also, the same finding was in accordance with (Gautam et al., 2011) who confirmed that patients' training program post-mastectomy led to good adherence to self-care practices as arm care, arm exercise and improved quality of life scores.

Regarding patient's self-efficacy, the findings of the present study indicated that no significant difference was found in the term of self-efficacy between the study and control groups before the implementation of the educational nursing program. However, self-efficacy significantly increased in the study group when followed before discharge and three months after the implementation of the educational nursing program than in control group. Similarly, (Mak & Ching, 2015) stated that self-efficacy in the intervention group had increased across time, whereas the self-efficacy in the control group had increased initially then decreased slightly across time and justified their finding by empowerment strategies have demonstrated their effectiveness in self-efficacy and patient activation.

In the same line with the above-mentioned findings, (Alhamss et al., 2014) in a quasi-experimental study entitled with health promotion program among breast cancer clients receiving chemotherapy in south governorates in Gaza, also indicated that there was an increment in clients' self-efficacy total mean scores in post-test than in pre-test and that improvement have positive statistically significant differences after the health promotion program.

(Masmouei et al., 2019) also, supported the above findings as they documented that assessment of the self-efficacy scores of the patients in the study showed an increase in the self-efficacy scores of the patients in the experimental group after the intervention. However, despite extensive searches in the scientific literature, no study was found to be in contrast with the findings of this investigation.

Regarding the relation between self-efficacy and the demographic characteristics, the results of this study illustrated that there was a positive correlation between levels of self-efficacy and patient's age before discharge and three months post- the educational nursing program. This means that older women have higher self-efficacy more than younger ones. These findings could be explained by that aging provides an experience for the person to deal with all kinds of stress, which in the future could help to boost confidence in dealing with stressful situations such as cancer diagnosis and treatment.

These findings were in agreement with (Davoodi, 2016) who revealed that there was a significant difference between the levels of self-efficacy in elderly and non-elderly women and showed that

women with the self-efficacy scores higher than average were older. However, on the other hand, this finding was inconsistent with (Ziner et al., 2012) who indicated that In older people, the fear of recurrence and concerns arising from cancer reduce self-efficacy in women with breast cancer. It seems that younger people have more ability for self-care and self-management.

Also, the present study revealed that there was a positive correlation between self-efficacy perception and level of education. This means that educated females have an improvement in their self-efficacy post nursing educational program and throughout the follow up period than uneducated females. The same result was in harmony with (Tabrizi et al., 2017) who noted there was a significant relationship between educational level and self-efficacy and explained that by educated women often have more social relationships, often employed and will have better control in front of the crisis, therefore self-efficacy in women with breast cancer increases with educational level.

Finally, the present study showed that there was a positive correlation between self-efficacy and occupation. this means that the level of self-efficacy of females who were housewives was lower than those who were employed. in analysis of the study results, it was seen that females who were housewives were less able to maintain self-care behaviors and needed support in this area. This finding was congruent with (Harorani et al., 2018) who mentioned that a significant correlation between self-efcacy and employment / marital satus.

Conclusion

Application of educational nursing programs had a positive effect on knowledge, practice, and self-efficacy of females undergoing mastectomy with a statistically significant great distinction among both the study and control groups.

Recommendations

Replication of the same study on larger probability samples at different geographical locations for data generalization. Provision of the educational booklet for females undergoing mastectomy to enhance their outcomes.

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