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Effect of post mastectomy nursing intervention program on elderly women's knowledge, practices and complications' prevention

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ABSTRACT
Background: Mastectomy is a cornerstone of disease management for breast cancer. Nurses are in a prime position to prevent postoperative complications, including seroma formation, wound infection, arm pain, stiffness, lymphedema and compromised range of motion of the shoulder and arm.Aim:to evaluate the effect of post mastectomy nursing intervention program on elderly women's knowledge, practices, and complications' prevention. Design: Quasi experimental pre/post one group design was utilized. Setting: The study was conducted in the inpatient and outpatient clinics of the breast cancer hospital, at the National Cancer Institute affiliated to Cairo University.Sample:120 elderly women aged 60 years or older who were assigned for mastectomy were included in the study. Tools:1- A structured Personal and Medical History Questionnaire, 2-The Disabilities of the Arm, Shoulder, and Hand (DASH) Questionnaire,3-Exercises Observational Checklist,4-Pre /Post Mastectomy Elderly women's Knowledge Questionnaire,5-Pain Assessment Scale and6- Post Mastectomy Complications Checklist. Results: age of elderly women ranged from 65 to 69 years with mean age of 68.5 and SD =± 9.2.Regarding to arm, shoulder & hand disabilities, in the pretest there were no disabilities as compared to majority of elderly women who hadmoderate difficulties at the post & follow-up assessment. Pain, numbness and restricted shoulder movement was prevalent among study sample.Conversely, some complications demonstrate consistent prevalence rates across both assessments, such as "Lymphedema. A highly statistically significant improvement was found in the elderly women regarding their practices and knowledge levels in post-program implementation than pre-program with P-value <0.001 **.Conclusion: Application of post mastectomy nursing intervention program had a positive effect on performance and knowledge of elderly women after mastectomy which contributed to complications' prevention.Recommendations: Replication of the study on a larger number of breast cancer patients.

Keywords: Elderly women, mastectomy, nursing intervention program

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. 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 (Hashem , Mohammed, Thabet & Youssef ,2020) Breast cancer has a negative impact on the elderly women and their family due to the nature of the disease, the treatment process and future anxiety.

The physical, psychological and social problems seen in patients vary according to the disease recurrence, prognosis, disease stage, surgical or pharmacological treatment and side effects. Therefore, cancer is a problem that should be addressed not only with its physical parameters but also with its psychological and social effects (Othman et al, 2024)

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 receive surgical treatments, in order to reduce fear and anxiety, as well to improve the coping ability of the patients, and promote their decision-making ability. The postoperative nursing interventions include relieving pain and discomfort, asking patients to perform 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 mechanisms, 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. In order to provide appropriate patient education, the breast cancer patient's educational needs should be taken into consideration and appropriate nursing care models have to be used. (Hashem, Mohammed, Thabet & Youssef, 2020).

Significance:

In Egypt, according to official statistics of the Egyptian National cancer institute, (2020), breast cancer accounts for 35.1% of the total female cancer cases in Egypt and is the most prevalent cancer among Egyptian women. According to oncology institute in Sohag statistical records in 2020, the commonest sites of cancer in Sohag Governorate were cancer breast (29.9%) and incidence of breast cancer were about 490 patients (483 females and 7 males) (Statistical Records in Sohage Medical Journal , 2023).

From diagnosis to completions of therapy, breast cancer survivors face a range of physical issues related to the disease and therapy, and psychological distress including the risk of recurrence and the presence of new cancers, all of which have an impact on their lives. Thus, the survivors need to receive optimal survivorship care (American Cancer Society, 2020).

Management of breast cancer in geriatric age group is a challenging task, yet it is extremely important to be mastered by the caring team. In an era of population ageing, clinical decisions should be optimized based on several factors rather than patients' age alone. These factors are related to patients' co-morbidities, performance status, and life expectancy and tumor pathological and molecular characteristics. Proper geriatric assessment, a process that is not practiced by many, is extremely important to hopefully avoid unnecessary undertreatment or expose patients to intolerable toxicities. (Abdel-Razeq et al, 2022)

Gerontological 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 receive surgical treatments, in order to reduce fear and anxiety, improve patients' knowledge, and practices to deal with potential complications. The postoperative nursing interventions include relieving pain and discomfort, regular arm exercises, managing postoperative sensations, promoting positive body image, promoting positive adjustment and coping ability by linking to the community-based care, teaching patients self-care and maintaining patients' satisfaction level with the care provided. (Hashem, Mohammed, Thabet & Youssef, 2020).

Aim of the study

To evaluate the effect of post mastectomy nursing intervention program on elderly women's knowledge, practices, and complications' prevention

Methods

Research Hypotheses

1- Posttest- mean scores of self-care knowledge will be higher for women who are

exposed to the intervention program than the pretest –mean scores.

2- Posttest- mean scores of self-care reported practices will be higher for women who are exposed to the intervention program than the pretest –mean scores.

3- Post mastectomy elderly women who are exposed to the intervention program will have less postoperative complications.

Methods

Research Design

Quasi experimental pre/post one group design was utilized in this study.

Setting

The current study was conducted in the inpatients surgical ward and outpatient clinics of the National Cancer Institute affiliated to Cairo University (Breast Cancer Institute in Fifth Settlement "Tagmoa El Khames"). There are 4 clinics working six days per week: from 9 am till 1pm with approximately 145 new cases daily. Regarding the surgical ward, it has 36 beds and the patients' length of stay ranges from 1 -3 days. The researcher attended two days per week until study sample size was achieved.

Sample

A purposive sample of 120 out of 400 elderly women planed for mastectomy attending the Breast Cancer Hospital, Cairo University in the outpatient / inpatient and follow up clinics were approached for the study.-

Inclusion criteria:

- Women with unilateral or bilateral breast cancer.
- Age 60 years and older.

Exclusion criteria of elderly with the following conditions:

Diagnoses of mental problems

Elderly women who were exposed to similar programs.

Tools for data collections: data were collected using the following 6 tools.

1) Elderly women Personal and Medical data questionnaire. It was developed by the researcher. It included two parts: Part 1: Elderly personal data (items). It includes: age, last occupation, income, marital status and education. Part 2: Health data about past& present history. It includes: chronic disease(s), family history, smoking habit, medical checkup routine, moving ability and physical exercise habits.

2) Pre/ post mastectomy elderly women's knowledge questionnaire. It was developed by the researcher. It included two parts: Part 1: knowledge related to breast cancer & mastectomy operation. It includes ten questions that related to the knowledge of the elderly women about breast cancer like risk factors, common signs and symptoms, methods of treatment and length of hospital stay after mastectomy.Part 2: knowledge related to breast examination & post mastectomy complications & follows up. It includes ten questions related to the knowledge of the elderly women about breast self examination, mammography examination, most common complications after mastectomy and the follow up screening time.

Scoring system:

One mark was given for each correct answer, and a zero score for the incorrect answer or no answer. For each area of knowledge, the scores of the items were summed up and the total score was divided by the number of the items to get the mean score. These scores were converted into percent scores. The total knowledge was considered satisfactory when the percent score is 60% or more, and unsatisfactory if it is less than 60%.

Reliability of tool:

The Pre/ post mastectomy elderly women knowledge questionnaire tool had a high reliability (Cronbach alpha=0.85)

3) Exercises observational checklist: It was developed by researchers. It included seven parts, with a total of 30 steps; each correct step was given one score and zero score was given for the uncorrected step or for the inability to perform it: Part 1: steps that assess the shoulder shrugs & squeezes. It includes five steps. Part 2: steps that assess the shoulder draw forward & shoulder circles. It includes five steps. Part 3: steps that assess the sideways arm raises. It includes three steps. Part 4: steps that assess the elbow bends. It includes four steps. Part 5: steps that assess the forearm rotation. It includes four steps. Part 6: steps that assess the wrist bends. It includes two

steps. Part 7: steps that assess thefinger bends, opposition & stretch.It include seven steps.

Scoring system:

One mark was given for each correct practice, and a zero score for the incorrect practice. For each area of excise practice, the scores of the thirty items were summed up and the total score was divided by the number of the items to get the mean score. These scores were converted into percent scores. The total practice was considered satisfactory when the percent score is 60% or more, and unsatisfactory if it is less than 60%.

3) Post mastectomy complications observational checklist: It was developed by the researchers. It included twelve most common complications that may develop after mastectomy operation to the elderly women.

Validity of the four tools developed by the researchers:

The study tools were constructed based on a scientifically relevant review of the existing English-related literature and using the available text books, articles, journals, and evidence-based scientific researches. A panel of five competent professors in the fields of Medical Surgical nursing, Gerontological nursing and Community Health Nursing evaluated the content validity of the produced instruments.

5) Standardized Pain Assessment Tool (Hartrick, Kovan & Shapiro, 2003).

It included the Numeric Rating Scale (NRS). Which the elderly verbally rates the intensity of pain on a scale from (0) no pain to (10) worst pain possible.

Scoring system: pain was considered mild (from 1to 3 points), moderate (from4 to 7points) and severe (from 8 to10 points) and to worst pain possible if the score is 10 Tool reliability:(only include tests used and result numbers) . The test-retest reliability of the (NRS) was 0.97, 0.95 respectively.

6) Standardized Disabilities of the Arm, Shoulder and Hand (DASH) to assess the elderly women's disability symptoms as well as the ability to perform certain activities. It consists of 30 functional status and measure the ability of the elderly to perform basic activities of daily living such as feeding, bathing and etc.

Scoring of the DASH

The DASH total scores = ([(sum of n responses / n)-1] x 25, where n is the number of completed responses.This tool was developed by the American Academy of Orthopedic Surgeons (AAOS), the Council of Musculoskeletal Specialty Societies (COMSS), and the Institute for Work and Health (Toronto& Ontario, 1996).

It is a 30-item questionnaire that is a self-administered region-specific outcome instrument developed as a measure of self-rated upper-extremity disability and symptoms that patients can rate difficulty and interference with daily life on a 5-point Likert scale. The items enquire about the degree of difficulty in performing different physical activities because of arm, shoulder, and hand problems (21 items), the severity of each of the symptoms of pain, activity-related pain, tingling, weakness, and stiffness (5items) and the impact of the problem on social functioning, work, sleep, and self-image (4items). Each item has five response options.

Response options were presented as 5-point Likert scale (1= no difficulty, 2= mild difficulty, 3= moderate difficulty 4=severe difficulty, 5=unable). A higher score indicated a greater level of disability and severity, whereas lower scores indicated a lower level of disability. The score ranged from 0 (no disability) to 100 (most severe disability).

Tool reliability: internal consistency/cross-sectional reliability was done for this tool: Cronbach's Alpha was 0.92–0.98.

Ethical Consideration

The Committee of Scientific Research Ethics of Cairo-Faculty University of Nursing approval number is RHDIRB2019041701. The researcher explained purpose and nature of the study and emphasis was made that participation in this study is voluntary; each elderly women has the right to withdraw from the study at any time. Written informed consents were obtained from the participants. Anonymity, privacy and confidentiality were assured through coding the data. Elderly women were assured that this data would not be reused in another research without

their permission, and data collected was used for the current research only.

Procedure

The current study was conducted through four stages; preparatory phase, pre intervention phase, intervention phase and evaluation phase.

1) Preparatory phase. Prior to conduction of the current study, the researcher secured the approval of the research ethics committee of the Faculty of Nursing, Cairo University to conduct the study and an official permission was obtained from the National Cancer Institute, Cairo University.

2) Pre intervention phase. It included baseline assessment; the researchers assessed elderly women's knowledge. Functional disability was assessed using the Disability Questionnaire. Baseline assessment data was performed twice per week; elderly women were interviewed at Wednesdays and Thursdays from 9 until 2 pm.

3) Intervention phase. To initiate the intervention sessions which include both practical and theoretical parts, researchers follow the following steps, 1-Keep elderly women's privacy.2- Place the elderly women in a comfortable position. 3- For the practical sessions the researchers explained the exercise procedure to the elderly women, 4- then, the researchers demonstrated the exercise program steps. 5- For the theoretical part researchers conduct a group discussion sessions for 15 minutes including the following content (definition of breast cancer, risk factors, signs and symptoms, diagnosis, lines of management, post operative complications and how to prevent complications) . 6- The researchers explain the healthy life style instructions to avoid the postoperative complications. 7- The researchers demonstrated arm, shoulder and hand exercise technique for 5-minute. 8- The researchers assessed the re-demonstration of the exercise and pain assessment and the presence of complications.

4) Evaluation phase. The researchers re-assessed and evaluated the pain (using Numeric Rating scale), the knowledge and practices of the elderly women and functional status and disability (using Standardized DASH Questionnaire) immediately in the post mastectomy session and after one month.

Statistic Design

Data were scored, tabulated and analyzed by personal computer using Statistical Package for the Social Sciences (SPSS) program version 26. Data relevant to the study were analyzed using both descriptive and inferential statistics. Correlations between the study variables were tested using relevant statistical tests of significance. The level of significance was set at P Value 0.05. Chi square tests were used to compare personal characteristics data. Repeated measures ANOVA test, independent t-tests and Pearson's correlation tests were also used to deal with data collected.

Results

Part I: Personal & medical data:

Figures from 1 to 6: Frequency distribution of elderly women regarding personal data (n=120):

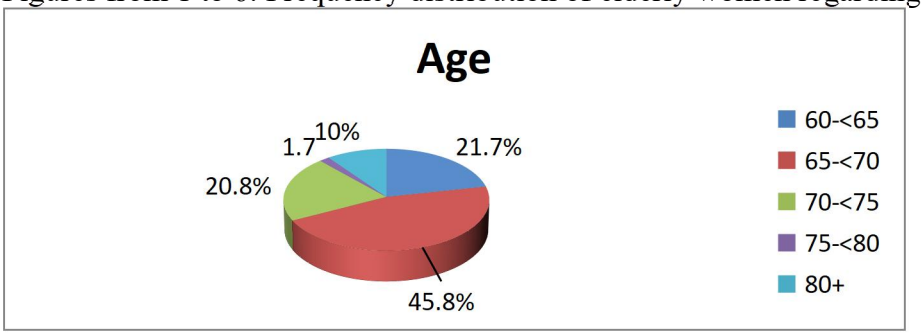

Figure 1: Frequency distribution of elderly women regarding Age (n=120):

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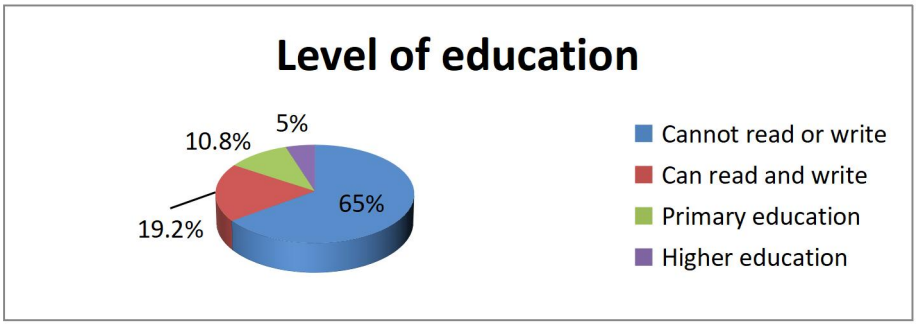

Figure2 Frequency distribution of elderly women regarding Level of education (n=120):

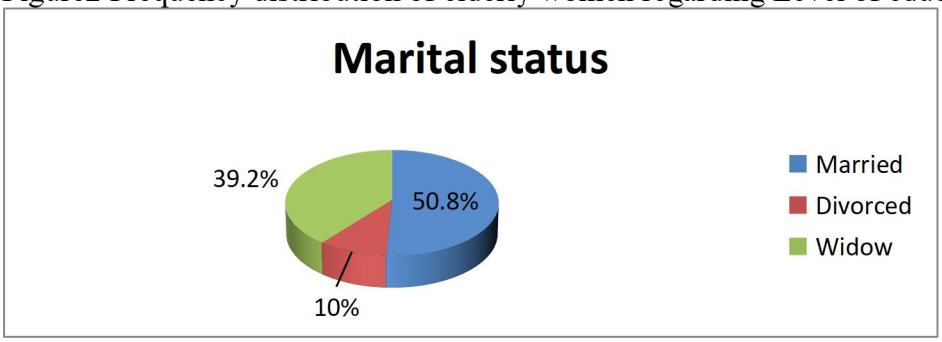

Figure 3 Frequency distribution of elderly women regarding marital status (n=120):

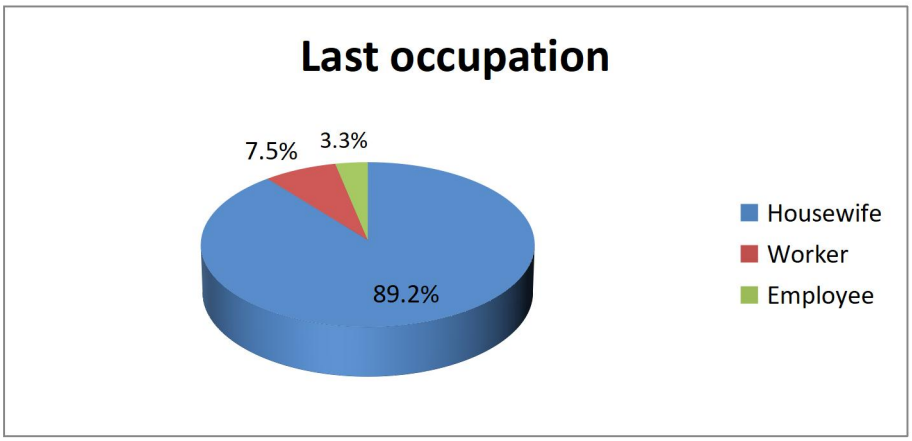

Figure 4 Frequency distribution of elderly women regarding last occupation (n=120):

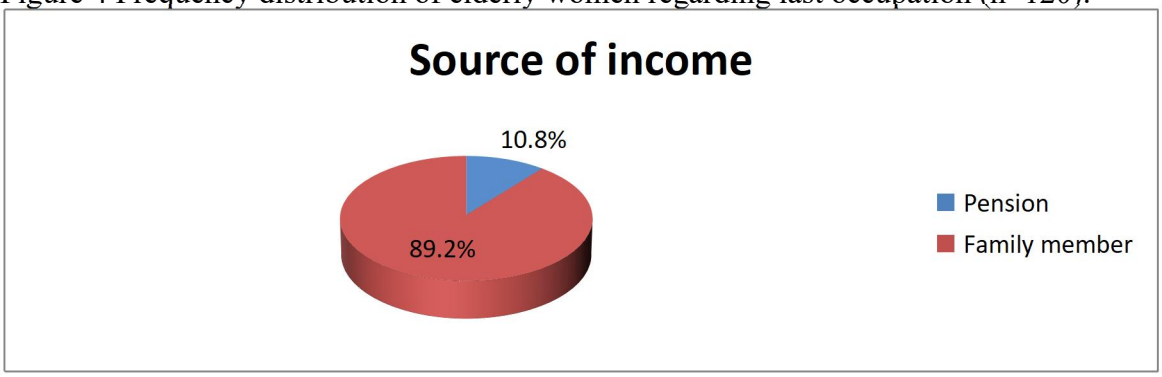

Figure 5 Frequency distribution of elderly women regarding income (n=120):

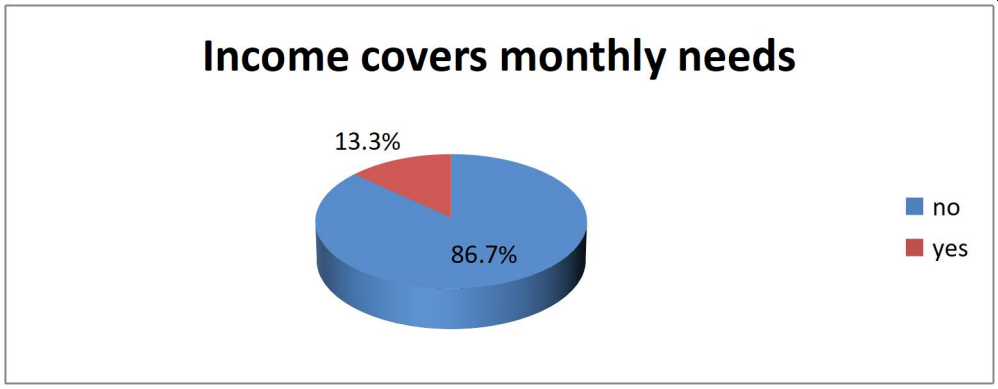

Figure 6 Frequency distribution of elderly women regarding income coverage to monthly need (n=120):
Figures from 1 to 6 reveals that the majority of elderly women fall within the age categories of 65 to 69 years (45.8%) and 60 to 64 years (21.7%), with mean age of 68.5 and SD =± 9.2 aligning with the elderly nature of the sample . Regarding education, a notable proportion (65.0%) indicated an inability to read or write, highlighting a diverse educational background among participants. Marital status diversity is reflected, with most participants being widowed (39.2%) or married (50.8%), and a smaller percentage being divorced (10.0%). Family structure is indicated by a significant majority having female children (75.8%), while 17.5% have male children and 6.7% have no children. Majority of participants were housewives (89.2%), reflecting their retired status, with a smaller proportion being workers (7.5%) or employees (3.3%). Income predominantly comes from family members (89.2%), while a minority receives pensions (10.8%).

Table 1 A.Frequency distribution of elderly women's regarding medical history. n=120

Medical history		Frequency	Percent
Sponsor of medical checkup	Governmental health insurance	120	100
Regular medical checkup routine	No	114	95
	Yes	6	5
Past surgical history before mastectomy	No	112	93.3
	Yes	8	6.7
Family history of breast cancer	No	27	22.5
	Yes	93	77.5
Degree of kinship	Mother	21	22.5
	Aunt	62	66.6
	Others	10	10.9
History of chronic diseases	No	92	76.7
	Yes	28	23.3
Types of chronic diseases	Diabetes	4	14.2
	Hypertension	6	21.4
	Diabetes & hypertension	11	39.2
	Others	7	25

Table 1A offers an overview of the participants' medical history. All participants (100.0%) have governmental health insurance for medical checkups, indicating widespread coverage.
However, 95.0 of elderly women are not on a regular medical checkup routine, potentially impacting consistent health monitoring. Before mastectomy93.3% reported no past surgical history.

Table 1 B. Frequency distribution of elderly women's regarding life style. n=120

Medical history		Frequency	Percent
Smoking	No	117	97.5
	Yes	3	2.5

Movement ability	Need assistance	27	22.5
	Free movement	93	77.5
Using assistive aids	No	92	76.7
	Yes	28	23.3
Regular practice of exercise	Yes	8	6.7
	No	112	93.3

Table 1b offers an overview of the participants' life style characteristics. Smoking is uncommon among participants; with 97.5% of elderly were not smokers. In terms of mobility, 77.5% of elderly women have unrestricted movement abilities, while 22.5% require assistance. Additionally, 23.3% of participants use walking or moving assistive aids

Table (2). Frequency distribution of elderly women's pre/post and follow up knowledge regarding breast cancer and mastectomy (n=120)

Aspect	Pre-test (mean ± SD)	Post-test (mean ± SD)	Follow up (mean± SD)	Chi-Square	P Value
Knowledge related to breast cancer & mastectomy operation	5.2 ± 1.3	7.6 ± 1.0	7.6 ± 1.0	12.345	0.001**
Knowledge related to breast examination &complications	4.7 ± 1.2	6.3 ± 0.9	6.3 ± 0.9	8.765	0.012*
TOTAL	9.9 ± 2.1	13.9 ± 1.6	13.9 ± 1.6	20.987	0.003**

*Significant **highly significant

The data from table 2 reflects changes in participants' knowledge levels related to breast cancer, mastectomy operation, breast examination, and complications before and after and follow up the intervention program. In terms of "Knowledge related to breast cancer & mastectomy operation," participants' knowledge significantly improved from pre-test (5.2 ± 1.3) to post-test & follow up (7.6 ± 1.0).

Similarly, regarding "Knowledge related to breast examination & complications," participants' knowledge also exhibited improvement from pre-test (4.7 ± 1.2) to post-test and follow up assessment (6.3 ± 0.9). The "total" knowledge score, encompassing both aspects, notably increased from pre-test (9.9 ± 2.1) to post-test and follow up (13.9 ± 1.6). The "P Value" (0.001, 0.012, and 0.003) suggests that the observed changes in knowledge scores are statistically significant.

Table (3): Relationship between knowledge level of elderly women in the pre , post and follow upperiod

Knowledge	Pre		Post		Follow up		X2	P
	No.	%	No.	%	No.	%		
Unsatisfactory	117	97.5	22	18.8	22	18.8	151.3	0.0001*
Satisfactory	3	2.5	95	81.2	95	81.2		

(n=120)

*highly significant

Table (3) indicates that, the majority of elderly women's (97.5%) had an unsatisfactory level of total knowledge in the pretest, whereas most of elderly women's (81.2%) had satisfactory knowledge in the post test and follow up test. There was a highly statistically significant difference between pre, post and follow up test levels of knowledge (at p-value<0.05)

Practice (forearm rotation)	Pre		Post		Follow up		X2	P
	No.	%	No.	%	No.	%		

Rest forearms on lap	120	100.0	79	65.8	113	94.2	8.45	0.004*
Put palms facing down	119	99.2	65	54.2	85	70.8	15.85	0.000*
Lift arm & turn palm up toward ceiling	120	100.0	106	88.3	106	88.3	0.87	0.352
Return to starting position	120	100.0	93	77.5	93	77.5	3.42	0.064
Practice (wrist bands)								
Place arms on a supported surface	117	97.5	56	46.7	106	88.3	21.51	0.000*
Turn palms up toward the ceiling	117	97.5	99	82.5	99	82.5	1.50	0.221
Practice (finger bends)								
Place forearms on a flat surface	120	100.0	74	61.7	88	73.3	10.91	0.001**
Make a tight fist	120	100.0	86	71.7	93	77.5	5.61	0.018*
Open hands & extend fingers	120	100.0	79	65.8	86	71.7	8.45	0.004**
Spread fingers apart then bring them back together	120	100.0	88	73.3	113	94.2	4.92	0.027*
Touch each fingertip to thumb	120	100.0	89	74.2	104	86.7	4.60	0.032*
Repeat for each finger	120	100.0	93	77.5	93	77.5	3.42	0.064
Return to starting position	120	100.0	86	71.7	88	73.3	5.61	0.018*

Table (4): Relationship between correct practice regarding in the pre / post and follow up tests (n=120)
*highly significant

Table (4) shows that, highly statistically significant differences between the correct practice regarding forearm rotation among the elderly patients in the pre, post and follow up assessments of elderly women (p-value<0.05)

In addition there is a highly statistically significant differences between the correct practice regarding wrist bands in the pre, post and follow up assessments of the elderly women's (p-value<0.05)
Also there is highly statistically significant differences between the correct practice regarding finger bends in the pre, post and follow up assessments of the elderly women's (p-value<0.05)

Table (5) Relationship between total scores on the Exercises Observational Checklist in the pre, post & follow-up assessments (n=120)

Aspect	Pre-test (mean ± SD)	Post-test (mean ± SD)	Follow-up (mean ± SD)	Chi-Square	P Value
Scores on the Exercises Observational Checklist	20.6±3.1	12.5 ± 3.2	18.2± 2.8	9.876	0.001*

*highly significant

The data in table (5) shows The "Exercises Observational Checklist" scores exhibited a substantial improvement from post-test (18.2 ± 2.8), tofurther advancement in the follow-up (20.6 ± 3.1). The low "P Value" (0.001) suggests that the differences in mean scores are statistically significant. This indicates that the probability of observing such changes due to random chance alone is extremely low.

Table (6): Comparison between the total scores of practices level in the pre/ posttest and follow up assessments (n=120)

*highly significant

Practice	Pre		Post		Follow up		X2	P
	No.	%	No.	%	No.	%		
Inadequate	0	0.0	25	21.4	22	18.3	28.6	0.0001*
Adequate	120	100.0	92	78.6	98	81.6		

Table 6 indicates that 78.6% of elderly women had adequate practice level in the post and follow up assessments at p-value 0.0001*

Regarding to DASH score the study result shows that one month after surgery (follow up), the total DASH scores of the elderly womenwas the same as thoseof immediate post mastectomy surgery.

Table 7.Total means score of the disabilities of the Arm, Shoulder and Hand among elderly women in post and follow-up assessments. n=120:

Aspect	Post-test (Mean ± SD)	Follow-up (Mean ± SD)	t-test	P Value
Arm, Shoulder, and Hand Problems	16.7 ± 3.1	17.9 ± 2.8	15.3	0.035*
Severity of Each Symptom	3.8 ± 0.7	4.1 ± 0.6	16.7	0.012*
Impact on Social Functioning	3.0 ± 0.5	3.2 ± 0.4	17.9	0.061
TOTAL	62.4 ± 7.2	68.7 ± 6.5	-	-

*significant

Table 7 shows concerning "Arm, Shoulder, and Hand Problems," the mean scores show an upward trend from Post-test (16.7 ± 3.1) to Follow-up (17.9 ± 2.8), with a corresponding P value of 0.035, suggesting a statistically significant change over time. And there is improvement in the severity of the symptoms and improvement on the impact of social functioning.

Table (8): Correlation between age education, income & complications and total scores of elderly women's knowledge & practice

	Age		Education		Income		Complications	
Scores	R	P	R	P	R	P	R	P
Knowledge	0.12	0.06	0.09	0.14	0.08	0.21	-0.3	0.001**
Practice	0.05	0.53	0.49	0.000**	0.25	0.000**	-0.02	0.81

**highly significant

Table (8) Shows that there is a highly significant correlation between elderly women's practices and age, income & education whereas no significant relationship was found between knowledge and the age & education level. Also the table indicates that knowledge, and compliance assessment is significant predictors of the effectiveness of the program.

Finally there is negative correlation between complications in elderly women's and scores of knowledge, practice

Table (9) Comparison between severities of Pain among elderly women

Aspect	Pre-test		Post-test		Follow-up		Chi-Square	P Value
	N	%	N	%	N	%		
Mild	30	25	45	37.5	65	54.1	9.864	0.002*

Moderate	45	37	55	45.8	42	35		
Severe	45	37	20	16.6	13	10.9		

*significant

In the Pain Assessment Scale (Table 9), distinct patterns of pain distribution were observed across the mild, moderate, and severe categories at various assessment stages: pre-test, post-test, and follow-up. The percentage distribution exhibited a consistent decline from the pre-test stage (25%) to the post-test (37.5%) and further to the follow-up assessment (54.1%). This decrease suggests a substantial and consistent response to treatment or intervention in the mild pain group, were provided only for the mild category, suggesting a significant change.

Discussion

Part I: Demographic characteristics of the study sample

Concerning to the mean age of the elderly women, the results of the current study showed that more than one-third of the elderly women were between the ages of sixty five and seventy.This is matched with the result of Zaheer et al, (2020) study which was conducted on sixty breast cancer patients in Pakistan to assess the effect of individualized education with support on breast cancer patients' anxiety and depression during radiation therapy, its results showed that that more than three quarters of elderly women were between the ages of sixty five and seventy.

Regarding the marital status the current study revealed that less than two thirds of older women were widowed. This result is consistent with Zaheer et al, (2020) who investigated the effect of individualized education with support on breast cancer patients' anxiety and depression during radiation therapy in Pakistan and discover that twenty five percent of the study sample was widowed.

Regarding education level, in this study there is a notable proportion (more than sixty five percent) of women cannot read or write. In the same line Amin, et al, (2024) who studied the Effect of Mastectomy on Quality of Life for Elderly Women at the oncology day clinic at the out-patient building at Zagazig university hospital. On a purposive sample of one hundred and forty elderly women & the study revealed that more than half of the studied elderly women were either illiterate or can read and write. From the researcher's point of view; this finding could be due to the fact that the studied sample were from rural areas were people didn't care to educate their female children.

Regarding to family history of the breast cancer in elderly women, the current study revealed that most of the women had a positive family history of breast cancer with first degree relation. This result is in conflict with the result of Amin, et al, (2024) who stated that the majority of the studied elderly women had no family history for mastectomy.

Additionally, Abd El Rahman et al, (2024) studied the effectiveness of educational guidelines on fifty post mastectomy women's knowledge and practices which was conducted in Oncology Centers, Minia Governorate, Egypt. The author mentioned that two-thirds of post mastectomy women had a family history of cancer.

In the current study, before mastectomy, a significant proportion, (three quarters) of them had free mobility &had unrestricted movement abilities. Additionally, less than twenty five percent of participants use walking or moving assistive aids. This result is in conflict with Amin, et al, (2024) who discovered that all of the studied elderly women suffered from health problems and most of them had arthritis, osteoporosis and GIT diseases.

Part II: Description of elderly women`s knowledge regarding breast cancer

Regarding knowledge of elderly women in the study sample, results of the current study showed highly statistically significant differences between the mean knowledge scores in the pre, post and follow up assessments tests regarding to the

general knowledge of breast cancer, mastectomy operation, breast examination and post mastectomy complications. These findings completely matched with Natarajan et al, (2023) who studied the effect of the pre-discharge educational intervention sessions for eighty post-mastectomy women which was conducted in a teaching hospital in Bangalore & found that prior to the nursing intervention sessions, the majority of patients had poor knowledge & there was a significantly improved knowledge levels among post mastectomy women who had undergone an educational intervention.

The current study exhibits that, the majority of elderly women's had an unsatisfactory level of total knowledge in the pretest, whereas most of elderly women had satisfactory knowledge in the post test. There was a highly statistically significance difference between pre & post level of knowledge.These results are in the same line with a study done in Iran to detect the Effect of Educational Intervention on Knowledge, Attitude, and Practice of Women towards Breast Cancer in 2022, by Rakhshani et al. who stated that there was a highly statistically significance difference between pre & post level of knowledge of women regarding breast cancer after the educational intervention.

The present study indicated that, more than one half of them had good level of knowledge in the post and follow up assessments respectively compared to the pretest. A highly statistically significant difference was found between total knowledge mean score of elderly women in the pre, post, and follow upassessments. These results could be affected by the educational level of the women as most of the studied participants were of limited education. However, knowledge was improved in the post-test because of access to knowledge in the form of the breast cancer prevention program that helped in changing their knowledge and increased percentage. The decrease in the percentage of those with good knowledge in the follow up assessment indicates the decreased retention of knowledge especially in elderly people and the need for refreshing programs.

This result to some degree matched with the results of Ramadan et al, (2023) who studied the effect of nursing program on patients' knowledge and self- care strategies regarding lymphedema prevention post mastectomy. This study was conducted in the oncology department affiliated to Benha University Hospital, Qalyubia Governorate, Egypt, on sixty women post-mastectomy.It was found that one third of post mastectomy women had acute lymphedema immediately post mastectomy and there was positive correlation between patients' overall variables and their self-reported instructions for lymphedema prevention pre as well as post program implementation and before and after mastectomy and also at follow-up. Moreover, there was a highly statistically significant difference of studied patients' total knowledge; learned exercises and self-reported instructions post implementation of educational program. From the researchers' point of view this result due to the impact of the nursing intervention program on the post mastectomy elderly women.

In relation to knowledge about signs and symptoms of breast cancer, the results of the current study revealed that only minority of elderly women in the study knew the correct signs and symptoms of the disease. These results were improved after implementation of the program as majority of the studied women knew the correct signs and symptoms of the disease in the post test. From researchers' point of view, these results may be related to similarities of signs and symptoms of breast cancer with other breast diseases that make them unable to differentiate between them as they don't have the adequate knowledge as most of the study participant could not read or write. These results support the research hypothesis stating: Posttest- mean scores of self-care knowledge will be higher for women who are exposed to the intervention program than the pretest –mean scores.

Part III: description of breast cancer self-care practices among elderly women

Concerning the compliance assessment of shoulder shrugs exercise, there were highly statistically significant differences between the correct practice regarding shoulder shrugs, draw shoulders and circles, sideways arm raises, elbow

bends, forearm rotation, wrist bends and finger bends in the pre, post assessments. This result is matched with the study done by Ribeiro et al., (2020) on 1710 breast cancer patients to evaluate the effectiveness of early rehabilitation protocols on range of motion, muscle strength and arm function after breast cancer surgery which indicated that range of motion protocols associated with strengthening exercises improve shoulder and arm function in patients who had surgery for breast cancers.

Concerning "arm, shoulder, and hand problems," the current study suggested that there is no statistically significant change over time. This is not matched with the result of Araby et al ,(2024), who studied the effect of educational-supportive program about therapeutic exercises on women's physical status undergoing mastectomy which was held in the Early Breast Cancer Detection Unit affiliated to Benha Faculty of Medicine and General & Oncology Surgery Ward in Egypt on eighty six women & stated that following the implementation of the educational support program on therapeutic exercises, the study group experienced significantly lower average scores for pain, Moreover, the study group showed markedly higher average scores for shoulder function

This result is matched with the study result that achieved in Turkey by Yilmaz,Tuna & Karaaslan, (2024) which was conducted in the surgery clinic of a Private University in order to assess lymphedema and lymphangitis for sixty-one women having mastectomy. However, women with breast cancer who had trainings by the breast care nurse had fewer symptoms so the nursing intervention program can be influential for preventing lymphedema and lymphangitis.

Moreover, the current study clarify that there was a statistically significant correlation between elderly women's practices and age, income & education whereas no significant relationship was found between knowledge and the education level of the elderly women. Also the study results indicate that knowledge, and compliance assessments are significant predictors. Knowledge has a positive effect on the elderly women's complications. Finally there is negative correlation between complications among elderly women scores of knowledge practice.

Results of the study supported the second hypothesis: posttest- mean scores of self-care reported practices will be higher for women who are exposed to the intervention program than the pretest mean scores.

Part IV: Description of post mastectomy complications in elderly women

Regarding the Pain Assessment Scale, distinct patterns of pain distribution were observed across the Mild, Moderate, and Severe categories at various assessment stages: pre-test, post-test, and follow-up. The percentage distribution exhibited a consistent decline from the pre-test stage to the post-test and further to the follow-up assessment. This decrease suggests a substantial and consistent response to treatment or intervention in the mild pain group. In addition, there is a negative correlation between complications and scores of difficulty level. The data illustrates a consistent reduction in the occurrence of various complications after the intervention:

The distribution of complications reveals "pain" as the most prevalent issue; followed by "numbness" and "restricted range of movement in shoulder". Notably, certain complications exhibit a decrease in frequency from post-test to follow-up. Indicating a possible natural subsiding or effective management over time.Conversely, some complications demonstrate consistent prevalence rates across assessments, such as "Lymphedema," "Hematoma," and "Seroma,". These stable rates suggest the persistence of these complications in the intermediate term. Rare complications like "Necrosis of Nipple" and "Nerve Trauma" have lower reported frequencies, emphasizing their significance for post-mastectomy care despite their limited occurrence. Moreover El-dawoody et al., (2020) who studied the effect of nursing care bundle on the outcomes of thirty women undergoing mastectomy which was conducted at plastic surgical department in Assiut University Hospitals, Egypt, mentioned that more than half of posttest sample suffered from moderate pain, there is statistically significant difference regarded assessment of Pain Visual Analogue Scale.

The provided data in the current study reveals correlations between participants' personal characteristics and their scores on the Disabilities of the Arm, Shoulder and Hand (DASH) Questionnaire at different assessment points (post-test, &follow-up). Regarding age, A statistically non-significant correlations with DASH scores at all stages suggest limited age-related impact. Level of Education exhibits a generally weak relationship with DASH scores. Marital status showed a moderate positive correlation, indicating potential influence on DASH scores. Correlations in follow-up are weak and non-significant. Number of children& their gender especially sons exhibit a moderate positive correlation with DASH scores, suggesting a potential impact on participants' experiences.

On the other hand, Occupation indicates a moderate negative correlation with DASH scores suggesting a potential link between certain occupations and lower DASH scores. Correlations at follow-up are weaker and non-significant. Income source portrays a moderate negative correlationwith DASH scores, indicating certain income sources might be linked to lower DASH scores. Correlations at follow-up are weaker and non-significant.

Finally, approximately three quarters of the study sample had a positive family history of breast cancer (mother). This means that specific genetic abnormalities that contribute to the development of breast cancer have been inherited (passed from parent to child). However, Abd El-Rahman et al., (2025) studied the effect of educational nursing program on knowledge and quality of life of forty women post mastectomy. The study was conducted in the breast, oncology outpatient clinics and Rheumatology and rehabilitation unit at Assiut University Hospital in Egypt, contradicted results of the current study and discovered that the highest percentage of their patients had a negative family history.

Regarding knowledge related to breast examination & complications participants' knowledge also exhibited improvement from pre-test to post-test. This is matched with the results of a study which was held in Iran to study the effect of Orem-based self-care education on improving self-care ability of patients undergoing chemotherapy by Rakhshani et al, (2022), which revealed that after the educational intervention, there was a statistically significant deference between before and after the intervention.

The poor knowledge and practices of elderly women in pre-operative assessment illustrates the need for health education programs directed to Egyptian females to improve their knowledge about breast cancer especially risk factors and its screening. Participants had positive attitude towards performing mammogram for screening of breast cancer; nevertheless, they were overwhelmed with other life problems keeping them away from screening.

Results of the current study clarify that there is an improvement in knowledge and practices of elderly women post mastectomy. This is matched with the result of a study by-Hashem et al, (2020) which illustrated the need for health education programs directed to Egyptian females to improve their knowledge about breast cancer.
In addition, the current study findings were consistent with Abd El-Rahman et al., (2025) who observed that the majority of the study patients showed a good maintenance level of self-care practices regarding arm care and total self-care practices at one-month post-discharge with a slight decrease at three months post-discharge.

Part V: Elderly women practices regarding breast cancer prevention:
The present study revealed that, most of the study participants had good level of practice in the post test compared to none in the pretest. The great improvement of practices after the program could be a result of the acquired knowledge about breast cancer prevention from the program which is reflected into proper practices to handle unhealthy or inappropriate practices for the prevention of breast cancer among elderly women.

From researchers' point of view, low family income, lack of materials and resources needed to practice self-care and healthy life style, negatively influence prevention of breast cancer.

Regarding practice for breast cancer prevention, the results of the current study revealed that all elderly women did not practice range of motion exercise, arm & shoulder exercise and relaxation techniques in the pre operative stage. These findings may be related to lack of knowledge among the Egyptian population about the importance of exercise and healthy practices especially in relation to prevention of breast cancer.

In the same line Salime & Srour, (2022) who studied the Effect of Structured Training Program on Practices of 120 Women Undergoing Modified Radical Mastectomy at the general surgery Departments and outpatient breast clinic at Oncology and Nuclear Medicine Center affiliated to Ain Shams University Hospitals, Egypt & stated that findings clarified an improvement in women's knowledge post the training program compared to pre training program. According to the opinion of the researchers the level of knowledge improved post training implementation might be due to health instructions given to studied women using different teaching strategies as, discussion, and colored booklet.

Regarding practices among studied women, the results revealed that there was a statistical significant difference between pre/post and follow up scores indicating satisfactory practices. Moreover, more improvement was detected post training program compared to pre training program. From researchers' point of view, it is suggested that in the implementation of educational cancer prevention programs, especially breast cancer, serious efforts should be made to educate and inform elderly women in the community in order to increase their knowledge and change their practices.

Regarding to the third hypotheses the study shows the distribution of" Pain" as the most prevalent complication, with eighty of participants experiencing it during the post-test assessment. This is followed by "Numbness" at sixty and "Restricted Range of Movement in Shoulder" at ninety percent. Notably, certain complications exhibit a decrease in frequency from post-test to follow-up. For instance, "Pain" decreased from twenty percent to sixteen per cent and "Frozen Shoulder" decreased from twelve per cent to eight percent of elderly patients, indicating a possible natural subsiding or effective management over time. This goes with the study of Ramadan & et al, 2023 who study the Effect of Nursing Program on Patients' Knowledge and Self-Care Strategies regarding Lymphedema Prevention Post Mastectomy. Which held on a 60 women post-mastectomy at Bahna university hospital & found that, most of studied patients didn't develop breast cancer related lymphedema by 3 months and 6 months follow up after implementation of self-care educational program. Moreover, there was a highly statistically significant difference of studied patients' total knowledge, learned exercises and self-reported instructions post implementation of educational program.

From the researcher point of view, improvements in elderly women knowledge and practices following a nursing intervention program are significant indicators of the program's effectiveness. Such interventions are designed not only to educate patients about their condition, treatment options, and self-care strategies, but also to empower them to actively participate in their health management. Researchers observe that post-intervention, patients often demonstrate enhanced understanding of their diagnosis, treatment side effects, and the importance of adherence to medical guidance. Furthermore, improved practices such as, symptom monitoring, and lifestyle adjustments suggest that nursing interventions play a vital role in bridging knowledge gaps and promoting better health outcomes. These findings clarify the importance of intervention educational nursing programs as part of comprehensive breast cancer care.

To sum up, Strengths of the current study included demonstration and re-demonstration of the recommended practices and emphasizing on healthy lifestyle and highlighting the need for health education and awareness campaign about breast cancer prevention among this vulnerable group. Meanwhile, current study also had certain limitations such as recall bias (short recall period). Elderly women self reporting of data with the possibility of over and under reporting. Restriction

to small sample size of elderly women so generalization of findings couldn't be gained The limitations in this study include involving women residing in Cairo only so does not necessarily reflect level of knowledge among all Egyptians.

Conclusion

On the basis of the findings of this study, the educational program significantly improved the knowledge and practices of elderly women. Majority of elderly women showed satisfactory knowledge and practices in the posttest and follow up compared to the pretest. In relation to complication prevention the study results shows that Pain and "Frozen Shoulder" decreased from indicating a possible natural subsiding or effective management over time

Recommendations

Based on findings of the current study, the following recommendations can be made:

1- Plan and implement educational programs to increase awareness of elderly women towards risk factors, early signs, and preventive measures of breast cancer.

2- Further research to evaluate the impact of breast cancer prevention on elderly women's awareness in different governorates.

3- A nationwide screening program for elderly women is suggested to detect any changes in the breast to prevent breast cancer.

4- Activate the role of the geriatric health nurses in helping elderly women to improve their knowledge regarding breast cancer and its prevention in a different settings, especially in outpatient clinics.

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