Effect of Educational-Supportive Program about Therapeutic Exercises on Women's Physical, Psychological and Marital Status Undergoing Mastectomy

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Abstract:

Background: Worldwide, breast cancer is a significant health issue for women. The removal of one or both breasts in women can frequently result in physical complications, emotional struggles like depression and stress, and issues in marital relationships. **Aim:** The study aimed to evaluate the effect of educational-supportive program about therapeutic exercises on women's physical, psychological and marital status undergoing mastectomy. **Design:** Quasi-experimental research (two groups, ″control - study″) design was utilized to fulfill the aim of this research. **Setting:** Early breast cancer detection unit affiliated to Benha Faculty of Medicine and General & Oncology Surgery Ward. **Sample:** A purposive sample of (86) women, the sample was divided into two groups (study group involved 43 women, while control group involved 43 women. **Tools:** Data collection involved six primary tools, including a structured self-administered questionnaire and the Wong-Baker Faces Pain Rating scale, Modified Fatigue Impact Scale, Shoulder ability and function questionnaire, anxiety, depression, and stress scale and ENRICH marital satisfaction scale. **Results:** Following the implementation of the educational support program on therapeutic exercises, the study group experienced significantly lower average scores for pain, fatigue, depression, anxiety, and stress compared to the control group. Moreover, the study group showed markedly higher average scores for shoulder function and marital satisfaction than the control group. **Conclusion:** Educational-supportive program about therapeutic exercises had a positive effect on women's physical, psychological and marital status of women undergoing mastectomy. **Recommendation**: The elements of an educational supportive program should be included as a key component of the treatment plan for women undergoing mastectomy.

Keywords: Educational-Supportive Program, Mastectomy, Psychological and Marital Status, Physical Status, Therapeutic Exercises.

Introduction

Breast cancer is a major health problem around the world, particularly for women. Within culture, breasts are commonly seen as representations of femininity, childbirth, and sexuality. As a result, the absence of one or both breasts can be linked to suicidal ideation, sadness, altered self-perception, and diminished sexual drive. This substantial transformation in physical appearance can also have a dramatic impact on women's everyday lives, social interactions, relationships, and general well-being **(Phoosuwan and Lundberg, 2023).**

Currently, surgery stands as the most efficacious method for treating breast cancer.

Furthermore, chemotherapy, hormone therapy, radiation therapy and/or biological therapy can be employed as adjunctive interventions. The experience of having a mastectomy because of breast cancer is highly unique and situational. Following a mastectomy, losing a breast might have a little or significant impact. A mastectomy involves removing all of the glandular tissue in the breast through surgery in order to eradicate any in-breast neoplasia and/or glandular tissue **(Ye, et al, 2023).**

Advanced surgical techniques, such as modified radical mastectomy, axillary or supraclavicular irradiation, and axillary lymphadenectomy might result in notable impairments in the upper limbs. Common issues following breast surgery include arm pain, infections at the surgical site, fatigue, limited shoulder movement, arm stiffness, swelling, joint inflammation, lymphedema, and a sensation of heaviness in the hands. These complications can affect the treatment process, quality of life, and ultimately, a woman's survival **(Natarajan, et al., 2023).**

In addition, women can have to cope with physical changes that impact their perception of femininity. Women with breast cancer experience aesthetic effects on social and psychological well-being Mastectomy can be profoundly upsetting for women, especially in cultures where breasts are viewed as symbols of beauty, sexuality, and femininity. The technique may result in self-mutilation, reduced self-esteem, and a perception of decreased femininity and sexual appeal **(Jelvehzadeh, et al., 2022).**

Also, the roles of wife and mother play a crucial part in shaping a woman's identity. Women often feel a strong obligation to meet their husbands' sexual needs and to safeguard their families. Consequently, they may place high importance on their husbands' patience with any potential sexual issues, which can impact their marital relationship **(Bokaie, et al., 2022).**

Therapeutic exercises have been shown to be effective for a range of neuro-musculo-skeletal conditions, including postoperative issues like pain, fatigue, and limited mobility, as well as psychological problems such as depression, anxiety, and stress. They are also utilized to manage a range of chronic ailments, such as osteoarthritis of hip and knee, subacute intermittent claudication and chronic low back pain, cystic fibrosis, stroke, disease of Parkinson's, type 2 diabetes, schizophrenia, multiple sclerosis, dementia, obesity, hypertension, and metabolic syndrome. As a result, therapeutic physical exercise is now a widely utilized approach in nursing care **(Muñoz-Tomás, et al., 2023).**

Therapeutic exercises have been used after breast cancer surgery and have proven beneficial for recovery. Nowadays, a variety of rehabilitation exercises are employed, including resistance training, elbow and shoulder exercises, drainage of lymphatic, aerobic workouts, physiotherapy, and massage. Mobilization stretches and exercises are particularly effective in enhancing shoulder mobility and reducing chest tightness, pain, and fatigue. Arm stretches help improve the shoulder’s range of motion in movements such as adduction, abduction, internal and external rotation, flexion, and extension **(Lin, et al., 2023).**

Encouraging women who have undergone mastectomy to engage in exercise after surgery can help mitigate the negative effects of surgical complications. Arm exercises are crucial for rehabilitating these women by improving muscle strength and upper limb function, reducing pain and discomfort, and boosting confidence. Health professionals, particularly nurses, encounter

challenges due to the progressive nature of these issues and the limited availability of effective treatments **(Wang, et al., 2023).**

Supportive training programs are a key component of comprehensive educational initiatives. These programs offer a framework in which women can learn behaviors that promote and sustain better health. Social support, which involves interactions between those providing and receiving support, helps women develop adaptive skills and employ proactive strategies to adjust to life changes. Gynecological nurses, being central to the treatment team, are well-positioned to offer both education and emotional support to women undergoing breast cancer surgery, thanks to their extended contact and involvement in patient care **(Nadrpour, et al., 2022).**

Self-care nursing training programs serve as the foundation for education of self-care in cancer patients. Research has demonstrated that programs of self-care enhance both the women with breast cancer physical and psychological well-being, as well as increase their overall life quality in their marriages **(Natarajan, et al, 2023).** Supportive educational nursing programs are very important in improving the conditions faced by women diagnosed with lymphedema following breast cancer. Evidence suggests that educational-supportive programs tailored to the specific requirements of women after mastectomy may effectively mitigate the associated adverse effects **(Sayadi, et al., 2021).**

Healthcare professionals, especially nurses, need to recognize the changes women experience after a mastectomy and offer targeted information, psychosocial support, and ongoing care. By understanding patients' perceptions of their illness and treatment options, nurses can design tailored interventions. Today, nurses' roles have expanded beyond providing physical care to include patient education and addressing psychological challenges related to treatment and disease. This approach helps women develop coping skills and strategies, leading to a greater sense of fulfillment (**Patiyal, et al., 2023).**

Significance of the study:

Mastectomy remains the mainstay and crucial part of the treatment plan of breast cancers treatment and early mastectomy plays an important role in survival. Global new cases of around 2.3 million and fatalities of roughly 685,000 were recorded in 2020. It is estimated that, the worldwide mastectomy surgeries will increase from 9,065,000 in 2024 to reach to 13,821,000 in 2040 **(American Cancer Society, 2024).**

Furthermore, this increased incidence of mastectomy indicates that it is the most effective treatment of breast cancer which reflects a decrease in breast cancer mortality rate. In Egypt, an approximately 30,000 new women with breast cancer estimated annually **(World Health Orgnization, 2024).**

Also, the statistical department at Benha University Hospital reported about 471 cases with mastectomy by the end of 2023. Among the several surgical options available, the most common is modified radical mastectomy, which is done in 63% of cases. The second most common strategy is breast-conserving surgery, which is done in 36% of instances **(Patiyal, et al., 2023).**

Women who undergo mastectomy often continue to experience physical symptoms, depression, and dissatisfaction in their marital lives. Chronic shoulder pain affects 20% to 68% of women after mastectomy, significantly impacting their daily activities. The first year after a breast cancer diagnosis is a high-risk time for developing depression. While anxiety, which

impacts 10-30% of women with cancer of breast, is a common psychological symptom. Healthcare providers may customize treatments to improve the marital relationships and offer specific and relevant assistance to women who have had mastectomy, by comprehending the elements that impact their life satisfaction and body image **(Bouya, et al, 2021) .**

As the use of non-pharmacological approaches like educational-supportive self-care programs grows due to their non-invasive nature, lack of side effects, and cost-effectiveness, this research aims to offer theoretical insights into developing effective nursing care. It also highlights the crucial role of nursing professionals in actively participating in and providing educational-supportive programs focused on therapeutic exercises **(Culha, et al., 2020).** Therefore, the researchers carried out this research to help mastectomized women to adapt to new images, relieve physical and psychological symptoms and enhance marital life.

Aim of the study:

The study aimed to examine the effect of educational-supportive program about therapeutic exercises on women's physical, psychological and marital status undergoing mastectomy.

Research hypotheses:

H1: Mastectomized women who will receive educational-supportive program about therapeutic exercises will exhibit a better physical status (reduced pain & fatigue impact and improved shoulder ability and function) than who will not receive.

H2: Mastectomized women who will receive educational-supportive program about therapeutic exercises will exhibit a better psychological status (reduced depression, anxiety, and stress) than who will not receive.

H3: Mastectomized women who will receive educational-supportive program about therapeutic exercises will exhibit a better marital satisfaction than who will not receive.

Conceptual definitions:

Educational-Supportive Program is an approach to improve various aspects of patients' care, including quality of life, care burden, health behaviors and physical or psychological problems **(Faroujizadeh, et al., 2023).**

Therapeutic Exercises: involves participating in organized, systematic, repetitive, and purposeful physical activity designed to improve or maintain a specific health condition. It includes general strengthening exercises, aerobic exercise, flexibility training, balance work, or exercises targeting specific body regions **(Holden, et al., 2023).**

Subjects and Methods

Research Design:

Using a quasi-experimental research design, namely using 2 groups (the group of study and the group of control) and a pre-posttest methodology, in order to accomplish its objective. A quasi-experimental design, like a genuine experiment, aims to find a causal link among a dependent variable and an independent variable. It is particularly valuable in cases where true experiments are not feasible due to ethical or practical constraints. In this design, the control and treatment groups should be similar in all respects except for the intervention being tested. Researchers aim to select groups that are as comparable as possible to ensure the validity of the results. This approach is one of the most commonly used types of quasi-experimental design **(Thomas, 2023).**

Setting:

The study was conducted in early breast cancer detection unit (EDCU) affiliated to Benha Faculty of Medicine and general & oncology surgery ward and A follow-up was conducted at the oncology and general surgery outpatient clinic located at Benha University Hospitals in Qaliobya governorate, Egypt. The EDCU, which stands for Early Detection and Cancer Unit, is the first facility in Qalyubia that offers free breast cancer detection and treatment. This unit was established in 2019 in collaboration with the National Program for Women's Health under the Ministry of Health. It is part of a national initiative launched by President Abdel Fattah El-Sisi to promote early detection and free treatment of breast cancer. Additionally, the unit supports the presidential initiative to improve and develop rural areas, villages, and slums. The unit is fully equipped to cater to the needs of Qalyubia Governorate and the neighboring Delta governorates.

Subjects:

Sample type and criteria: A purposive sample of women undergone modified radical mastectomy (MRM) was selected from the above-mentioned research settings; according to following **inclusion criteria:** Married women scheduled for modified radical mastectomy being in age range of 20-60 unilateral in nature, no history of mental health issues, and no evidence of previous cancers (recurrence of breast cancer should not be a factor)., have no previous upper limb disability or past shoulder surgery, without visual audible or verbal communication impairments, not attending previous exercise program, no stressful events during the last six months. The research did not include women who had diabetes mellitus, kidney illness, heart disease, lung diseases, or neurological impairment.

Sample size and technique:

A purposive sample of 86 women who had undergone modified radical mastectomy was selected, excluding those who did not meet the inclusion criteria. According to the **Benha University Hospital statistical center for 2022**, there were 240 mastectomized women admitted to the hospital during that year.

The sample size was computed using the formula shown below (**Mani, et al, 2015)**; **Wherever**: n=sample size, N=population size (148), e=Margin of errors which is±0.07

$$n=\frac{N}{1+N\,(e)2} \quad n=\frac{148}{1+151x0.0049} \quad n=\frac{148}{1.735} = 85.79$$

For this research, the researchers assigned 43 women as study group who receive the educational-supportive program on therapeutic exercises and regular hospital care, and 43 were women assigned as control group that received just normal hospital care. To minimize bias in data collection, women who underwent mastectomy and were admitted to the general and oncology surgery wards were randomly assigned to groups. Specifically, cases admitted on the first day were assigned to the control group, those admitted on the second day to the intervention group, and this alternating pattern continued.

Tools of data collection:

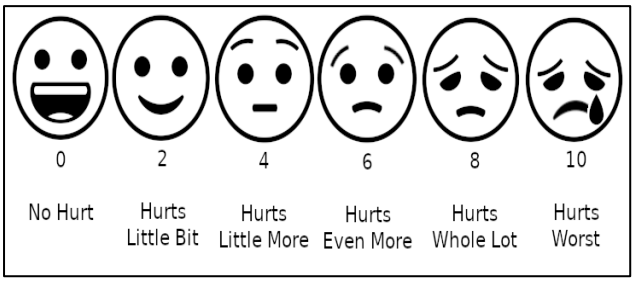
6 tools were used for data collection:

Tool I: A structured Interviewing questionnaire: it was constructed by researchers after reviewing related literature and translated into Arabic language. It included two parts:

Part (1): **Personal data of mastectomized women:** it comprised of 4 items which were (residence, age, level of education and occupation).

Part (2): Medical and family history of mastectomized women: it comprised of 4 items which were (duration of cancer since diagnosis, affected side (arm), treatments and presence of family history).

Tool II: Pain rating scale of Wong-Baker FACES: In 1983, Donnie Wong and Connie Baker created the Wong-Baker Faces Pain Rating Scale. It was adapted from **(Charles, et al., 2009)** and **(Drendel, et al., 2011)**. The Pain Rating Scale of Wong-Baker Faces is a self-assessment tool designed to describe physical pain. It offers flexibility by combining numbers and descriptive words to help individuals express their pain levels. The scale features six faces: a happy face at 0 indicates "no pain," while a crying face at 10 represents "the worst pain." The numbers on the scale increase in steps of 2.



Scoring system:

Each face on the Pain Rating Scale of Wong-Baker Faces corresponds to a specific pain score, as described below: On the scale from 0 (no hurt) to 10 (worst), the first face represents "no hurt" and the second "hurts a little bit," the third "hurts a little more," the fourth "hurts even more," the fifth "hurts a whole lot," and the last "hurts worst" represents the lowest possible score.

Tool III: Modified Fatigue Impact Scale (MFIS): It was assumed from **(Fisk, et al., 1994)** and used to evaluate the fatigue effect on women's activities. The tool included 21 items, which were organized into three subscales as follows:

- The physical subscale includes 9 items that assess various aspects of physical performance and discomfort, such as: feeling clumsy and uncoordinated, needing to pace oneself during physical activities, having reduced motivation for tasks requiring physical effort, struggling to maintain physical effort over extended periods, experiencing muscle weakness, feeling physically uncomfortable, being less able to complete physically demanding tasks, limiting physical activities, and requiring more frequent or longer rest periods.
- The psychosocial subscale consists of 2 items that evaluate social and lifestyle limitations, including: decreased motivation to engage in social activities and restrictions on the ability to participate in activities outside the home.
- The cognitive subscale features 10 items that evaluate different aspects of cognitive performance, including: reduced alertness, trouble sustaining attention for long periods, difficulty with clear thinking, forgetfulness, challenges in decision-making, decreased motivation for tasks that require mental effort, difficulty completing mentally demanding tasks, issues organizing thoughts for home or work activities, slowed thinking, and problems concentrating.

Scoring System:

The scale assigns a rating to each item as follows: zero for never, one for seldom, two for occasionally, three for frequently, and four for always. The overall score may vary between 0 to 84, with higher values indicating a more significant influence of weariness on a woman's everyday tasks. The scores for each item are aggregated, and the overall score is categorized into four groups:

No effect (0), Mild impact (1-28), Moderate impact (29-56), and Severe impact (57-84).

Tool IV: Shoulder Ability and Function Questionnaire: It was developed based on the shoulder evaluation form used by American shoulder and elbow specialist. **(McRae, 2004)** and the purpose of its use was to evaluate the injured shoulder's functional capacity. It has sixteen questions that have been translated into Arabic and deal with various tasks, such as washing one's hair, scrubbing one's back, and the opposite armpit.

Scoring system:

The activities were evaluated using a 4-point scale, where 0 indicates complete inability to perform, one indicates possible only with assistance, two indicates difficulty, three indicates mild compromise, and four indicates normal performance. The scores for each activity were then added up to get a total score ranging from 0 to 64, where bigger scores indicated better shoulder ability and function.

Tool V: Depression, Anxiety, and Stress Scale (DASS-21): It was adopted from **(Lovibond and Lovibond, 1995)**. The scale includes 21 items, distributed into 3 sections that measure depression, anxiety, and stress. Each section has seven items. The depression scale assesses symptoms such as lack of enjoyment, fatigue, persistent sadness, disinterest, self-criticism, and feelings of life's worthlessness. The anxiety scale evaluates situational anxiety, muscle tension, physical signs of nervousness, and personal feelings of anxiety. The stress scale measures nervous tension, difficulty relaxing, irritability or anger, and impatience.

Scoring system:

Women were instructed to read each statement and select a number from zero to three to indicate how well the statement described their experiences over the past week or month. The total score ranges from 0 to 63. Higher scores on the scale reflect greater symptoms of depression (inability to feel pleasure), anxiety (feelings of worry and apprehension), and stress (tension and irritability).

The applicability rating scale was:

0 = Did not apply to me at all
1 = Applied to me to some degree or some of the time
2 = Applied to me to a considerable degree or a good part of the time
3 = Applied to me very much or most of the time

Tool VI: The ENRICH Marital Satisfaction (EMS) Scale: It was adopted from **(Fowers and Olson, 1993).** The scale includes 15 items designed to assess satisfaction in a marital relationship through two main dimensions: Idealistic Distortion (ID) and Marital Satisfaction (MS) The Marital Satisfaction dimension—consisting of 10 items—evaluates different facets of the marital relationship, such as communication dissatisfaction and partner misinterpretation, while the Idealistic Distortion dimension—consisting of 5 items—focuses on unrealistically positive views of the relationship, such as believing it is perfect. The remaining items are included in the Marital Satisfaction dimension

Scoring system:

A scale of five-point was used for each question, with one representing strongly disagree and five representing strongly agree. Items two, five, eight, nine, twelve, and fourteen had their values inverted to determine the overall score. This meant that a rating of 5 would be counted as 1, a rating of 4 as 2, and a rating of 3 remained untouched. According to the qualitative study, the general degree of marital satisfaction is as follows: When it came to marital satisfaction, higher ratings

indicated more happiness. ratings among 85% and 100% were considered high, 65-80% as high, 40-60% as moderate, 20-35% as low, and 5-15% as too low.

Tools validity:

Each survey was evaluated for clarity, relevance, thoroughness, and application by a panel of two obstetric and gynecological nursing experts, two medical surgical nursing experts and one psychiatric and mental health nursing experts from University of Benha. Rephrasing and adding a few phrases were among the modest adjustments they suggested. The tools were considered valid by the experts in the end.

Tools reliability:

The research tools were evaluated for reliability using Cronbach's Alpha coefficient test, and it was found that their internal consistency was:

Tool	Cronbach's alpha value
Tool II: Wong-Baker FACES Pain rating scale.	Internal consistency (α =0.80) .
Tool III: Modified Fatigue Impact Scale (MFIS).	Internal consistency (α =0.85) .
Tool IV: Shoulder Ability and Function Questionnaire.	Internal consistency (α =0.87).
Tool V: Depression, Anxiety, and Stress Scale (DASS-21).	Internal consistency (α = 0.95).
Tool VI: The ENRICH Marital Satisfaction (EMS) Scale	Internal consistency (α =0.86). – Satisfaction (α =0.84). – Distortion (α =0.74).

Ethical consideration:

Ethical concerns were thoroughly examined before the beginning of study. The Scientific Research Ethical Committee at Benha University's Faculty of Nursing approved the study, and permission was also obtained from the relevant research settings. In order to gain the participants' trust and confidence, the researchers described the study's goal and relevance before they used the instruments. All participants were given the opportunity to provide their informed permission after being told that their comments would be kept secret. There was zero danger to the participants' mental, social, or physical health from this study. All data gathering instruments were deleted after statistical analysis to ensure anonymity. The study was meticulously planned to avoid any mention of unethical comments and to uphold human rights. Anyone might stop participating in the research at any point.

Pilot Study:

Nine women who had previously had a mastectomy participated in a pilot study that accounted for 10% of the overall sample size. Our goal was to evaluate the tools' clarity, objectivity, practicality, and application. We also wanted to find any faults with the questions' phrasing or sequence that may impact data collecting. The researchers also estimated how long it would take to get the data. The tools were fine-tuned based on the findings of the pilot project, and to ensure that the sample was unaffected, the participants from the study of pilot were not involved in the main study.

Field Work:

Formal written approval was first obtained from the Faculty of Nursing dean and then forwarded to the Benha University Hospitals director. This approval was subsequently sent to the Early Breast Cancer Detection Unit (EDCU) director at Benha Faculty of Medicine and to the head of the General and Oncology Surgery Ward to secure their consent for conducting the research after outlining its objectives. The study was conducted from early August 2023 through late April 2024,

covering a span of nine months. Researchers performed the study twice a week, specifically on Saturdays and Mondays, between 9:00 a.m. and 1:00 p.m., at the designated locations until the target sample size was achieved. Women were interviewed in small groups of 2-3 daily to implement an educational-supportive program focused on therapeutic exercises. At the study's conclusion, a booklet on mastectomy and postoperative therapeutic exercises was placed in the General and Oncology Surgery Ward for distribution to all mastectomized women, ensuring the research benefits reached a broader audience.

The educational-supportive program was executed in five phases: the preparatory phase, the interviewing and assessment phase, the planning phase, the implementation phase, and the evaluation phase.

Preparatory phase:

The preparatory phase represented the research initial stage, during which the researchers conducted a review of both international literature and local pertinent to the research problem. This literature review provided insight into the scope and significance of the issue, aiding in the development of the necessary data collection tools. Subsequently, these tools were distributed to three experts in obstetrics and gynecological nursing at Benha University for evaluation of their appropriateness, comprehensiveness, clarity, relevance, and applicability. The feedback received from these experts was then analyzed.

Interviewing and assessment phase:

In the preoperative setting of the surgical oncology ward, the researchers conducted interviews with women scheduled for a modified radical mastectomy. Each interview began with the researchers individually greeting and introducing themselves to the women, followed by an explanation of the study's purpose. Detailed information was provided regarding the scheduled visits, including the number and frequency of sessions, and the importance of adhering to the interventions was highlighted. Consent to participate in the research was then obtained from each woman. During the initial visit, data collection focused on sociodemographic information and medical and family history. **(Tool: I)**. Also pretest related data: **(Tool: II)**: Pain rating scale of Wong-Baker FACES, (**Tool: III)**: Modified Fatigue Impact Scale (MFIS), (**Tool: IV)**: Shoulder Ability and Function Questionnaire, **(Tool: V)**: Depression, Anxiety, and Stress Scale (DASS-21) and **(Tool: VI)**: The ENRICH Marital Satisfaction (EMS) Scale.

The questionnaires took about 45 minutes to one hour to complete on average. This phase of data collection established a baseline for future comparisons to assess the impact of the educational-supportive program on therapeutic exercises. Additionally, during this phase, researchers evaluated each woman's educational needs to assist in the planning phase. Women's telephone numbers were also gathered to facilitate follow-up contact**.**

Planning phase:

Drawing from the results of the assessment phase, the researchers designed an educational-supportive program on therapeutic exercises, which was presented in a printed booklet featuring colored illustrations. The booklet, created in simple Arabic to align with the women's comprehension levels and address their knowledge gaps, detailed the number and content of sessions, various teaching methods, and instructional media. Specific objectives were outlined to be achieved by the end of the program. The primary aim was for each woman to acquire essential knowledge and enhance her postoperative physical, psychological, and

marital well-being, thereby improving her overall quality of life

Educational material (booklet):

The booklet was designed and updated to provide women with detailed information and guidance. It is structured into four main sections: The first section offers a comprehensive explanation of breast cancer and the mastectomy procedure, including its definition, reasons for the surgery, different types, and potential complications. The second section focuses on rehabilitation exercises, categorized by timing those to be performed while the drain is in place and those to be done after its removal. The third section recommends relaxation techniques including progressive muscle relaxation, meditation, and deep breathing exercises to alleviate tension, worry, and sadness; it also offers guidance on how to cope with changes in one's perception of one's body, how to sleep, and what to eat. The fourth section covers discharge instructions, including wound care, recognizing signs of infection, performing breast self-exams, and scheduling follow-up visits. The booklet was developed following a thorough review of relevant literature and is written in simple Arabic with illustrated pictures to enhance understanding.

Implementation phase

For control group

The women in the group of control had standard hospital care and analgesics, but no therapeutic exercise interventions were provided. They were monitored and evaluated in the same way as those in the study group. The research did not change the patients' medication schedules; analgesics were given according to physician orders and hospital protocols for both groups.

For study group:

This phase was carried out exclusively for the study group. After gathering baseline data, the researchers arranged the educational sessions with the women, which comprised five sessions, each lasting 45 minutes to one hour. The schedule for these sessions was adjusted based on their progress and feedback. All sessions were conducted over a two-week period prior to surgery. During this time, researchers visited the women daily to encourage them and monitor their adherence to the exercises and instructions.

During the initial session, the intervention content was presented to the ladies. Subsequent meetings started with a thorough examination of the input received from the preceding session, followed by a clear delineation of the goals and aims for the next sessions. Basic Arabic was employed to ensure the material was presented in a clear and comprehensible manner. A small portion of time was designated at the conclusion of each session for the purpose of addressing any inquiries and providing more explanation. Furthermore, every lady was provided with information on the timetable for the next sessions.

The program employed various teaching methods, including lectures, demonstrations and re-demonstrations, group discussions, critical thinking exercises, and brainstorming sessions. Instructional media featured a laptop with PowerPoint presentations, online and offline videos, and a booklet given to all participants from the first session to support the program’s goals. To reinforce key concepts and emphasize the educational-supportive program impact on the physical, psychological, and marital well-being of women post-mastectomy, supportive tools such as stickers and flyers were also used.

The first session provided an orientation and explained mastectomy to the women, covering topics such as its definition, types, indications,

complications, treatment options, adverse side effects of treatments, postoperative care, and its impact on physical, psychological, and marital status.

The second session focused on training for basic postoperative care, including exercises of deep breathing, meditation, and progressive muscle relaxation, as well as exercises to be performed from the first to the seventh day postoperatively to alleviate pain and fatigue.

The third session, instructions were given on shoulder exercises to be done while the drain is still in place, such as shoulder pumping, shoulder circles, arm lifts, and shoulder blade squeezes. It also covered shoulder exercises to perform after the removal of the drain and sutures. These exercises aimed to enhance the functional abilities of the affected shoulder and included movements like clockwise and wall climbing exercises, hand rope exercises, shoulder protraction, hand stick exercises, shoulder elevation and depression, shoulder circumduction, and scapula strengthening exercises.

The fourth session addressed wound care, nutrition and healthy eating habits, sleeping practices, measures to prevent or manage lymphedema, and breast self-examination techniques.

The fifth session provided guidance on managing depression, anxiety, stress, and improving marital relationships.

Women were encouraged to assume a comfortable position while performing shoulder exercises, with researchers ensuring that they were not disturbed during this period. For this group, the exercises of post-mastectomy shoulder were to begin on the second postoperative day, with instructions to perform them twice daily for 20 minutes per session. Women were advised to continue these exercises at home for one month after discharge. In addition, relaxation exercises were to be done twice daily, both in the morning and evening, following the guidance provided in the educational booklet and as instructed by the researchers. The researchers also arranged meetings with the women's husbands, inviting them to contribute in a group learning session to support the maintenance of strong relationships with their wives.

Postoperatively, the researchers visited the mastectomized women to remind them of all the instructions that needed to be followed accurately. To enhance their understanding of mastectomy, the researchers also introduced online videos and audio summaries of the booklet's content. Throughout the postoperative and post-discharge phases, regular telephone contact was maintained with the study group until the evaluation phase commenced. This ongoing communication was intended to address any questions and support the women in adhering to and engaging with the educational program. The researchers specified a designated one-hour period each day, available for two evenings per week, during which women could call for further clarifications. They were also encouraged to reach out through mobile applications like WhatsApp or Telegram.

Evaluation phase:

For study group: The effectiveness of the educational-supportive program on therapeutic exercises was assessed twice: once one week postoperatively and again one month after implementation. The evaluation utilized the same tools (Tool II, Tool III, Tool IV, Tool V, and Tool VI) as those used during the assessment phase. This phase concluded when the researchers conducted follow-up visits with the women, both by phone and at the

outpatient clinics. In contrast, the women in the control group received standard hospital care and no educational interventions from the researchers. They were monitored and evaluated in the same way as the women in the study group**.**

Statistical analysis:

Prior to inputting the data into the computer, it was first validated. Afterwards, the gathered data were systematically arranged, assigned codes, and examined using suitable statistical techniques and tests, utilizing the Statistical Package for Social Sciences (SPSS version 22.0) for the study. Descriptive statistics, such as frequencies, percentages, means, and standard deviations, were computed. In order to assess the study hypotheses, inferential statistics such as the Chi-square test and independent t-test were utilized. The correlation coefficient was employed to evaluate the associations between scores of different variables. When analyzing the results, a p-value higher than 0.05 was considered to suggest that there is no statistically significant difference. A p-value of 0.05 or lower was considered to indicate a statistically significant difference, while a p-value of 0.001 or lower was regarded as indicating a highly significant difference.

Limitations

- The researcher found the work environment exhausting due to the overcrowding of patients and visitors.
- In the outpatient clinic, the absence of a dedicated follow-up room for women post-mastectomy made it challenging for the researcher to manage follow-ups amid the crowd.
- Some patients missed their follow-up appointments until they were reminded by the researcher. These patients were removed from the study sample. To address this issue and maintain an adequate sample size of 86 women, the excluded patients were replaced with other women.

Results:

Table (1): Notes that both the control and study groups had a similar age distribution, with 41.9% and 46.5% of women, respectively, falling within the 40-49 years age range. The average age in the group of control was 40.65 ± 8.68 years, whereas in the study group it was 41.44 ± 7.90 years. In terms of where they lived, 51.2% of the group of control and 60.5% of the group of study were villagers. In terms of education, 48.8% of the control group and 44.2% of the study group had secondary education. In terms of occupation, 72.1% of the control group and 67.4% of the study group were housewives. As a result, t no substantial difference was found in terms of personal data between the two groups ($p > 0.05$), indicating that the groups were similar.

Table (2): Details that 88.4% of the group of control and 81.4% of the group of study were diagnosed with cancer less than a year ago. Regarding the side affected, 53.5% of the group of control and 65.1% of the group of study had cancer in the left breast. Additionally, 67.4% of the group of control and 74.4% of the group of study underwent chemotherapy. Concerning breast cancer family history, 79.1% of the group of control and 72.1% of the group of study had a family history of the disease. Therefore, no statistically substantial difference was found among the groups of control and study regarding medical and family history ($p > 0.05$), indicating homogeneity among the groups.

Table (3): Shows that no statistically substantial difference was found in the total mean pain score among the two groups during

the preoperative phase (P > 0.05). However, at both one week and one month postoperatively, the group of study had a substantially lower total mean pain score compared to the group of control (P ≤ 0.001).

Figure (1): Illustrates that, at pre- operative phase, the mean total scores of pain in the study and control groups were 1.95 and 1.91, respectively. However, 1 week and 1 month post-operative, the mean total scores of pain decreased significantly in the study group compared to the control group 7.30 and 3.72 versus 8.23 and 4.70 respectively.

Table (4): Shows that no statistically substantial difference was found in the total mean score of fatigue impact and its subscales among the two groups during the preoperative phase (P > 0.05). However, at one week and one month after surgery, the study group exhibited significantly lower total mean scores for fatigue impact and its domains compared to the group of control (P ≤ 0.001).

Figure (2): Illustrates that, at pre-operative phase, the mean total scores of fatigue impact in the study and control groups were 21.80 and 21.69, respectively. However, 1 week and 1 month post-operative, the mean total scores of fatigue impact decreased significantly in the study group compared to the control group 49.32 and 25.39 versus 61.27 and 31.97 respectively.

Table (5): Denotes that, during the preoperative phase, no substantial differences was found in the mean scores of all shoulder ability and function items, as well as their total score, between the two groups (P > 0.05). However, at one week and one month postoperatively, the mean scores for overall shoulder ability and function items in the group of study were substantially higher in relation to those in the group of control (P ≤ 0.001).

Table (6): Shows no statistically substantial difference in the emotional status and its subscales total mean score among the two groups during the preoperative phase (P > 0.05). However, at one week and one month after surgery, the study group had lower total mean scores for emotional status and its subscales compared to the group of control (P ≤ 0.001).

Figure (3): Illustrates that, at pre-operative phase, the mean total scores of bad emotional status in the study and control groups were 47.81 and 46.72, respectively. However, 1 week and 1 month post-operative, the mean total scores of bad emotional status decreased significantly in the study group compared to the control group 42.13 and 28.62 versus 51.58 and 37.60 respectively.

Table (7): It shows that during the pre-intervention phase, no statistically substantial difference was found in the ENRICH Marital Satisfaction mean total score and its domains among the two groups (P > 0.05). However, at both one week and one month post-intervention, the group of study had significantly higher mean total scores for ENRICH Marital Satisfaction and its domains in relation to the group of control (P ≤ 0.001).

Table (8): Shows that a highly substantial positive correlation existed among the total scores for both fatigue and pain and the total emotional status score impact in both groups during the phase of pre-intervention, as well as at 1 week and 1 month post-intervention (P ≤ 0.001).

Table (1) Distribution of the studied sample in both groups according to their personal data(n=86).

Personal data	Control group n=43		Study group n=43		X2	P value
	No.	%	No.	%		
Age:						
▪ 20– 29	8	18.6	6	14.0	**1.20**	**0.753**
▪ 30 – 39	13	30.2	15	34.9		
▪ 40 – 49	18	41.9	20	46.5		
▪ 50 – 60	4	9.3	2	4.6		
Mean ± SD =	40.65±8.68		41.44±7.90		**t-test= 0.442**	**0.660**
Residence:						
▪ Village	22	51.2	26	60.5	**0.754**	**0.385**
▪ City	21	28.0	17	22.7		
Level of education:						
▪ Not read and write	2	4.7	0	0.0	**2.49**	**0.477**
▪ Primary education	7	16.3	9	20.9		
▪ Secondary education	21	48.8	19	44.2		
▪ University education	13	30.2	15	34.9		
Occupation:						
▪ Housewife	31	72.1	29	67.4	**0.221**	**0.639**
▪ Working	12	27.9	14	32.6		

Table (2): Distribution of the studied sample in both groups regarding their medical and family history (n=86).

Medical and family history	Control group n=43		Study group n=43		X2	P value
	No.	%	No.	%		
Duration of cancer since diagnosis:						
Less than 1 year	38	88.4	35	81.4	**0.816**	**0.366**
More than 1 year	5	11.6	8	18.6		
Affected side:						
Right breast	20	46.5	15	34.9	**1.20**	**0.272**
Left breast	23	53.5	28	65.1		
Treatments:						
Chemotherapy	29	67.4	32	74.4	**0.508**	**0.476**
Radiotherapy	14	32.6	11	25.6		
Presence of family history:						
Yes	34	79.1	31	72.1	**0.567**	**0.451**
No	9	20.9	12	27.9		

Table (3): Mean scores of pain rating of the studied sample in both groups at pre-operative, 1 week and 1 month post-operative phases (n=86).

Pain score	Possible score	Control group n=43	Study group n=43	Independent t-test	P value
		Mean ± SD	Mean ± SD		
Pre-operative	0/10	1.91±1.30	1.95±1.34	0.163	0.871
One week post-operative		8.23±1.81	7.30±1.62	2.50	0.014*
One month post-operative		4.70±1.68	3.72±1.20	3.09	0.003*

*A Statistical significant $p \leq 0.05$

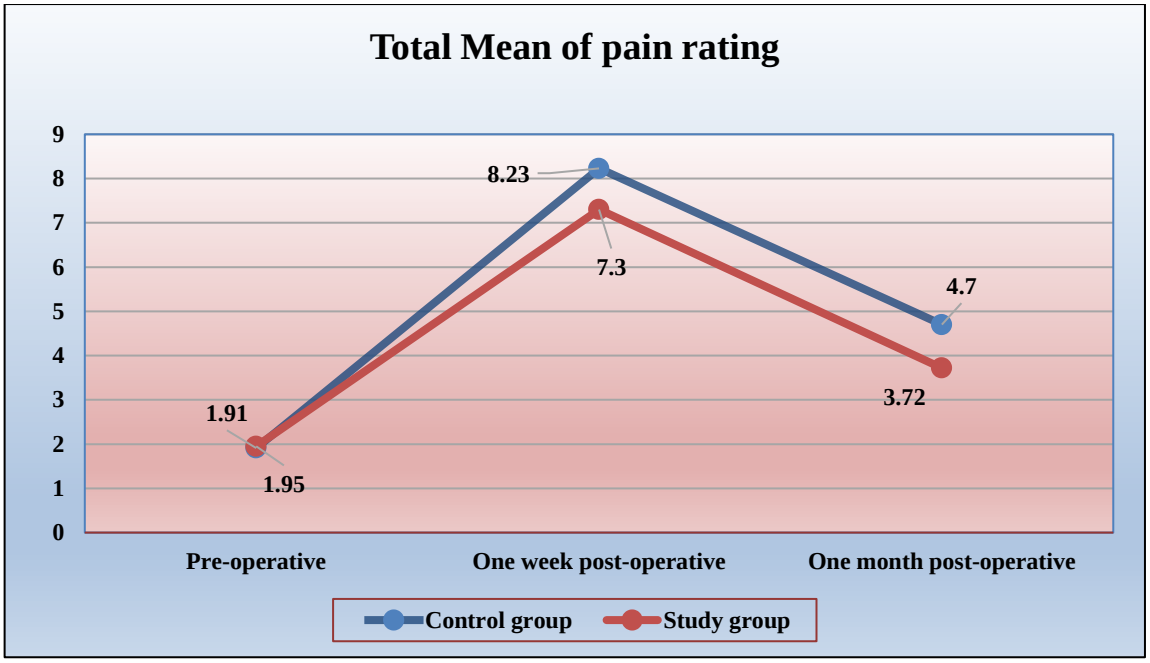


Figure (1): Total mean score of pain of control and study groups at pre-operative, 1 week and 1 month post-operative phases (n=86).

Table (4): Mean scores of fatigue impact of the studied sample in both groups at pre-operative, one week and one month post-operative phases (n=86).

Fatigue impact subscales	Possible score	Control group n=43	Study group n=43	Independent t-test	P value
		Mean ± SD	Mean ± SD		
Physical impact					
Pre-operative	0/36	9.28±1.81	9.70±1.31	1.22	0.225
One week post-operative		28.21±4.54	23.23±4.73	4.97	0.000**
One month post-operative		15.74±2.73	13.63±2.07	4.04	0.000**
Psychosocial impact					
Pre-operative	0/8	1.56±1.11	1.81±1.07	1.08	0.283
One week post-operative		6.72±1.05	4.67±0.91	9.59	0.000**
One month post-operative		2.56±0.93	1.30±0.83	6.58	0.000**
Cognitive impact					
Pre-operative	0/40	10.86±3.03	10.30±2.45	0.937	0.000**
One week post-operative		26.35±6.80	21.42±6.12	3.53	0.001**
One month post-operative		13.67±3.62	10.47±4.11	3.83	0.000**
Total Mean ± SD					
Pre-operative	**0/84**	21.69±4.25	21.80±2.58	1.53	0.879
One week post-operative		61.27±7.97	49.32±8.17	6.86	0.000**
One month post-operative		31.97±4.65	25.39±4.68	6.53	0.000**

**A Highly Statistical significant p ≤ 0.001

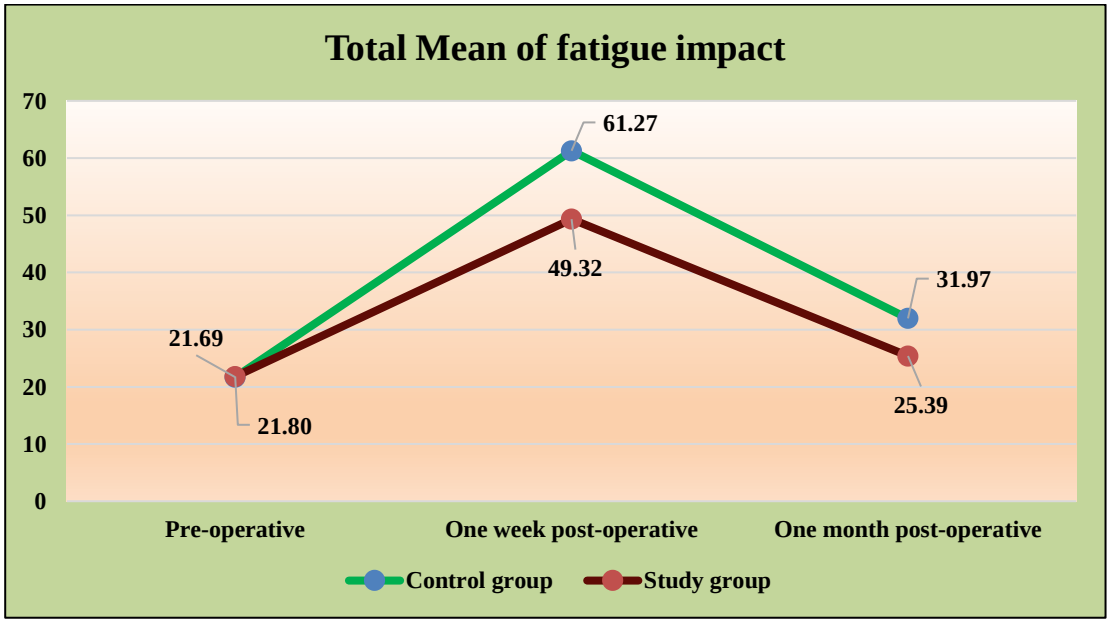


Figure (2): Total mean score of fatigue impact of control and study groups at pre-operative, 1 week and 1 month post-operative phases (n=86).

Table (5): Mean scores of shoulder ability and function of the studied sample in both groups at pre-operative, one week and one month post-operative phases (n=86).

Shoulder ability and function	Pre-operative			One week post-operative			One month post-operative		
	Control group n=43	Study group n=43	P-value t-test	Control group n=43	Study group n=43	P-value t-test	Control group n=43	Study group n=43	P-value t-test
	Mean ± SD	Mean ± SD		Mean ± SD	Mean ± SD		Mean ± SD	Mean ± SD	
Putting or removing something in a back pocket	4.0±0.0	4.0±0.0	-	1.28±0.76	2.07±0.64	5.16 0.000**	2.05±0.75	2.63±0.69	3.72 0.000**
Washing the opposite axilla	4.0±0.0	4.0±0.0	-	1.00±0.72	2.00±0.75	6.26 0.000**	2.00±0.69	2.84±0.78	5.25 0.000**
Washing the back	4.0±0.0	4.0±0.0	-	0.58±0.66	2.00±0.61	10.26 0.000**	2.05±0.61	2.67±0.94	3.65 0.000**
Washing and combing the hair	4.0±0.0	4.0±0.0	-	0.60±0.66	1.14±0.60	3.93 0.000**	1.86±0.63	2.42±0.73	3.76 0.000**
Putting on a pullover sweater	4.0±0.0	4.0±0.0	-	1.16±0.57	2.23±0.68	7.85 0.000**	1.98±0.51	3.05±0.78	7.48 0.000**
Putting on pants	4.0±0.0	4.0±0.0	-	0.77±0.68	1.98±0.63	8.48 0.000**	2.07±0.59	2.67±0.64	4.52 0.000**
Dressing	4.0±0.0	4.0±0.0	-	1.21±0.83	2.33±0.80	6.30 0.000**	1.86±0.63	3.16±0.61	9.63 0.000**
Carrying 4.5 kg at the side	4.0±0.0	4.0±0.0	-	0.58±0.66	2.00±0.61	10.26 0.000**	1.98±0.51	3.05±0.78	7.48 0.000**
Sleeping on the affected side	4.0±0.0	4.0±0.0	-	1.00±0.72	2.00±0.75	6.26 0.000**	1.86±0.63	2.42±0.73	3.76 0.000**
Using the arm at shoulder level	4.0±0.0	4.0±0.0	-	1.28±0.76	2.07±0.64	5.16 0.000**	2.05±0.75	2.63±0.69	3.72 0.000**
Using the hand over head	4.0±0.0	4.0±0.0	-	0.60±0.66	1.14±0.60	3.93 0.000**	1.86±0.63	2.42±0.73	3.76 0.000**
Perineal care	4.0±0.0	4.0±0.0	-	0.77±0.68	1.98±0.63	8.48 0.000**	2.07±0.59	2.67±0.64	4.52 0.000**
Eating with utensil	4.0±0.0	4.0±0.0	-	1.74±0.44	2.58±0.62	7.16 0.000**	2.79±0.70	3.53±0.66	5.01 0.000**
Lifting	4.0±0.0	4.0±0.0	-	1.28±0.66	2.21±0.60	6.80 0.000**	2.21±0.60	3.51±0.66	9.51 0.000**
Pulling	4.0±0.0	4.0±0.0	-	1.42±0.93	2.12±0.93	3.47 0.000**	2.09±.61	3.21±0.74	7.62 0.000**
Throwing	4.0±0.0	4.0±0.0	-	1.14±0.83	2.05±0.61	5.74 0.000**	2.05±0.61	2.67±0.71	4.36 0.000**
Total score	**64.0±0.0**	**64.0±0.0**	**-**	**16.44±3.39**	**31.88±3.74**	**20.03 0.000****	**32.81±4.00**	**45.55±3.94**	**14.86 0.000****

Table (6): Mean scores of psychological status (depression, anxiety, and stress) of the studied sample in both groups at pre-operative, one week and one month post-operative phases (n=86).

Emotional subscales	Possible score	Control group n=43	Study group n=43	Independent t-test	P value
		Mean ± SD	Mean ± SD		
Depression					
Pre-operative	0/21	17.09±2.70	17.33±2.67	0.401	0.689
One week post-operative		18.70±2.17	15.93±2.15	5.29	0.000**
One month post-operative		15.07±2.73	9.91±2.38	9.31	0.000**
Anxiety					
Pre-operative	0/21	15.77±2.83	16.23±2.37	0.824	0.412
One week post-operative		16.42±2.65	14.00±3.24	3.78	0.000**
One month post-operative		12.12±3.17	9.91±2.81	3.41	0.001**
Stress					
Pre-operative	0/21	13.86±3.36	14.26±3.08	0.568	0.572
One week post-operative		16.47±3.45	12.21±3.06	6.04	0.000**
One month post-operative		10.42±1.31	8.81±1.51	5.24	0.000**
Total emotional status					
Pre-operative	**0/63**	46.72±6.60	47.81±5.88	0.810	0.420
One week post-operative		51.58±5.05	42.13±5.16	8.57	0.000**
One month post-operative		37.60±4.07	28.62±4.12	10.15	0.000**

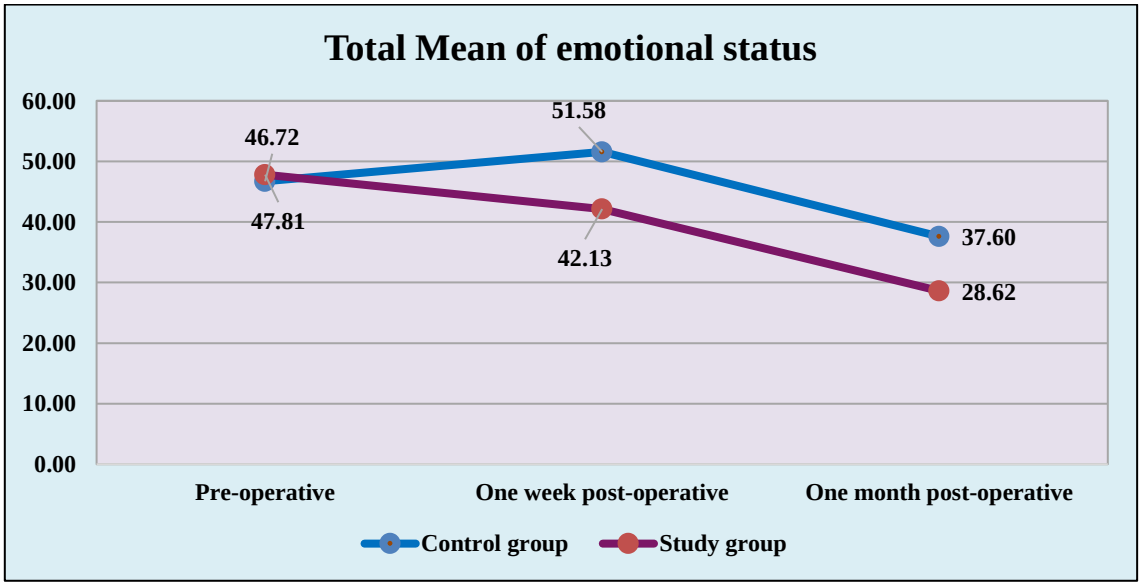


Figure (3): Total mean score of emotional status of control and study groups at pre-operative, 1 week and 1 month post-operative phases (n=86).

Table (7): Mean scores of ENRICH Marital Satisfaction (EMS) of the studied sample in both groups at pre-operative, one week and one month post-operative phases (n=86).

Domains	Possible score	Control group n=43	Study group n=43	Independent t-test	P value
		Mean ± SD	Mean ± SD		
Marital satisfaction					
Pre-operative	**10-50**	44.00±5.28	45.30±3.99	1.28	0.201
One week post-operative		29.49±6.77	34.95±6.68	3.67	0.000**
One month post-operative		35.44±4.66	40.21±5.86	4.17	0.000**
Idealistic distortion					
Pre-operative	**5-25**	21.86±3.22	22.74±2.58	1.40	0.165
One week post-operative		14.23±4.30	18.42±4.09	4.61	0.000**
One month post-operative		19.44±1.54	21.07±2.56	3.56	0.001**
Total score					
Pre-operative	**15-75**	66.97±4.37	68.04±4.43	1.12	0.263
One week post-operative		43.72±8.12	53.37±7.36	5.77	0.000**
One month post-operative		54.88±4.55	61.27±7.78	4.64	0.000**

Table (8): Correlation between total emotional status score and total scores of (pain and fatigue impact) at pre-operative, one week and one month post-operative phases (n=86).

Variables	Total emotional status score											
	Control group (n=43)						Study group (n=43)					
	Pre-operative		One week post-operative		One month post-operative		Pre-operative		One week post-operative		One month post-operative	
	r	P-value	r	P-value	r	P-value	r	P-value	r	P-value	r	P-value
Total pain score	0.442	0.000**	0.562	0.000**	0.548	0.000**	0.621	0.000**	0.784	0.000**	0.663	0.000**
Total fatigue impact score	0.461	0.000**	0.647	0.000**	0.504	0.000**	0.537	0.000**	0.710	0.000**	0. 518	0.000**

**A Highly Statistical significant $p \leq 0.001$

Discussion:

Breast cancer continues to be a big public health concern, even though there have been many advances and treatment choices. Cancer of breast is the most common cancer among women and the second most prevalent cancer globally and in the US, according to the latest Global Burden of Disease (GBD) study. Physical, mental, and marital difficulties may arise after a mastectomy, the conventional therapy for breast cancer. Consequently, nurses must be able to assess the requirements of breast cancer patients, provide correct nursing diagnoses, and design effective treatment programs **(Phoosuwan and Lundberg, 2023).**

The present study aimed to assess how a therapeutic exercise program that included educational components affected the emotional, mental, and physical health of women going through mastectomy as well as their marital stability. Significant improvements in shoulder function and capability and enhancements in marital happiness were observed after the introduction of an instructional-supportive program centred on therapeutic exercises, whereas ratings for pain, exhaustion, and emotional condition were significantly reduced. The results confirmed the study hypothesis that had been put forth.

Regarding the personal characteristics of the studied women, in this investigation, we found that both the control and study groups had mean ages of 40.65 ± 8.68 and 41.44 ± 7.90 years, respectively, within the age range of 40-49. In terms of where they called residence, more over 50% of people in both categories were from rural regions. Both the control and study groups contained approximately half of its members with a secondary education or above. In terms of occupation, almost two-thirds of both categories were stay-at-home moms. Also, after comparing the two groups' individual data, no statistically substantial differences were found ($p > 0.05$).

This result was nearly congruent with **(Natarajan, et al., 2023)** who reported that the group of age with the maximum score, 55 years and older, accounted for 51% of the 80 breast cancer samples assessed. This finding is also consistent with **(Mohammed, et al., 2020)** who disclosed that the average age of both the groups of study and control was 48.77 ± 9.1 years. Aging is a major risk factor for cancer of breast, partly attributed to increased life expectancy and shifts in reproductive patterns observed in women over 40 **(Muñoz-Tomás, et al., 2023).**

The present research result nearly agreed with **(Khalaf, et al, 2023)** who over a quarter of the participants had only primary education, while about one-third had secondary education.

Researchers believed that women's level of education may clearly affect the perception of cancer and thus affect the way to deal with and adapt to physical, psychological and marital complications.

The present research result went in the same line with **(Hashem, et al., 2020)** who clarified that more than half of the patients in both groups were housewives. This could be linked to their higher exposure to household insecticides and detergents, which may increase the risk of breast cancer. Additionally, housewives might be less aware of the importance of breast self-examination for early cancer detection, possibly due to a lack of awareness. Moreover, this finding is consistent with **(Atya, et al., 2020)** who indicated that there was no statistically significant difference

between the study and control group that reflected group homogeneity.

In relation to medical and family history, most individuals in both the control and study groups were diagnosed with cancer less than a year ago. In addition, more than half of the control group and over two-thirds of the study group had cancer in the left breast. Furthermore, more than two-thirds of the control group and fewer than three-quarters of the study group underwent chemotherapy. Regarding family history, over three-quarters of the control group and fewer than three-quarters of the study group had a history of breast cancer in their families. There was no statistically significant difference in medical or family history between the control and study groups ($p > 0.05$), suggesting that the groups were similar.

This result was congruent with **(Wang & Du, 2024)** who demonstrated that that more than half of the participants had breast cancer in the left breast. In contrast, this finding contradicts the results of **(Abdallah, et al., 2021)** who reported that breast cancer was found in the right breast for more than half of the control group and approximately two-thirds of the study group.

Moreover, the research result comes in the same line with **(Ahmed, et al., 2023)** who stated that chemotherapy was administered to more than two-thirds of the participants. In this context, **(Centers for Diseases Control, 2021)** observed that a woman's risk of developing breast cancer is increased if she has a first-degree relative such as a mother, sister, or daughter or multiple family members on either her mother's or father's side who have had breast or ovarian cancer.

This indicates that inherited genetic abnormalities may have a huge impact in the development of breast cancer. Consistent with the findings of the current investigation, **(Ahmed, et al., 2023)** indicated that more than two-thirds of the women who had undergone mastectomy had a family history of breast cancer, according to their medical records. This finding is consistent with **(Abo Afsa, et al., 2022)** who showed that the majority of both the study and control groups had mothers with breast cancer. Furthermore, this result aligns with **(Abo Afsa, et al., 2022)** who reported that no statistically significant differences were observed among the study groups concerning clinical data.

The American Society of Clinical Oncology (2021) who found that most women who had undergone breast cancer surgery experienced shoulder pain and limited upper arm movement, with these symptoms lasting up to 1.5 years after the surgery. In terms of pain, the current study found no statistically significant difference in overall pain scores between the two groups before the operation. However, at both one week and one month after the surgery, the study group reported significantly lower average pain scores than the control group. This suggests that the educational and supportive program on therapeutic exercises might be effective in reducing pain. These findings are consistent with those of **Majed et al. (2020),** who reported that the intervention group experienced significantly better physical well-being at both two and four weeks post-surgery.

Also**, (Elsaba, et al., 2022)** revealed that most women in the intervention group experienced a decrease in mild pain and fatigue during the post-test compared to those in the control group. Moreover, there were highly significant differences in pain and

fatigue scores between the intervention and control groups. Furthermore, this result is consistent with **(Soliman, et al., 2018)** who stated that there were highly significant differences in the pain index disability scores across the pre-intervention, post-intervention, and follow-up periods.

Cancer patients need proper guidance and support to handle the negative effects of the disease and its treatments. Fatigue related to cancer is often associated with feelings of exhaustion and is connected to physical activity levels **(Elsaba, et al., 2022).** Pertaining to fatigue impact, the current research findings indicated that no statistically substantial difference was found in the total mean score of fatigue impact and its subscales among the two groups during the pre-operative phase. However, at one week and one month following the postoperative period, the group of study showed a substantially lower total mean score for fatigue impact and its domains in relation to the group of control. According to the researchers, these results suggest that the therapeutic exercises effectively reduced fatigue in women after mastectomy.

In congruence with **(Prieto-Gómez, et al., 2022)** who reported that a notable decrease in perceived fatigue was achieved through a combination of a supervised therapeutic exercise program and patient education on therapy. Also, **(Sharma, et al., 2023)** It was indicated that women who underwent surgical treatment for breast cancer can experience clinical and health benefits from resistance exercises. The results showed improvements in pain and fatigue impact among cancer survivors. Additionally, (**Liu, et al., 2022)** concluded that Yoga, aerobic resistance exercises, and aerobic yoga are recommended for women with breast cancer both during and after treatment. These activities can help reduce cancer-related fatigue by enhancing physical resilience.

Continuous education of women to do shoulder exercises which can play an critical role in improving shoulder dysfunction after mastectomy. Regarding shoulder ability and function, the current research findings indicated no significant difference in the mean scores for all items related to shoulder ability and function, as well as their total score, among the two groups at the pre-operative phase. However, at both one week and one month post-operatively, the mean scores for overall shoulder ability and function in the group of study were notably higher compared to those in the control group. This outcome has been associated with **(Hussein, et al., 2023)** who showed that high statistically substantial correlation between the total score of the group of study before shoulder exercises and their total score was found both after the exercises and during follow-up.

In consistence with **(Kunjarkar, et al., 2022)** who revealed that after two weeks of therapeutic exercises, a significant improvement was observed in the right shoulder joint range of motion, along with increased ease in performing activities related to transitions. Also, **(Majed et al., 2020)** clarified that at 2 and 4 weeks post-surgery, it was clarified that women in the group of intervention experienced substantial enhancements in shoulder range of motion, with notable improvements in flexion, extension, and abduction when compared to the control group. Moreover, **(Ahmed and Afzal, 2022)** concluded that a nurse-supported, home-based shoulder exercise program effectively improves shoulder joint range of motion and reduces pain in women who have undergone a mastectomy.

Women undergoing mastectomy and subsequent cycles of chemotherapy commonly experience feelings of depression, distress, uncertainty, and fear. Despite understanding the necessity of the surgery, many women endure prolonged periods of sadness related to their breasts loss and often suffer from depression of early morning **(Patiyal, et al., 2023).**

The current research results showed that, before the operation, there was no statistically significant difference in the overall emotional status scores and their subscales between the two groups. However, one week and one month after the surgery, the study group had lower overall emotional status scores and subscale scores compared to the control group.

These findings explained the information gap that contributes to rising emotional instability and fear of the unknown; and the great role that educational sessions play in removing these gaps and so alleviating these psychological upsets.

This result was congruent with **(Ahmed, et al., 2023)** that found that the total level of women's depression, anxiety, and stress scores was severe at the time of the pretest, but after the application of social media based instructional guidelines, highly statistically significant improvements were seen in the total emotional disturbance scores of women for mastectomy, including depression, anxiety, and stress. Also, this result was consistent with **(Bouya, et al., 2021)** who found that a nursing self-care educational intervention led to a significant reduction in depression among patients undergoing chemotherapy following mastectomy.

The outcome matched what was discovered by **(Abdoli et al., 2021)**, who found that around two-thirds of the participants experienced minimal depression after using coping methods to manage their emotions during mastectomy. Before beginning the intervention, the initial stage of the research revealed that this group had a significant amount of depression. Moreover, (**Mahmood and Amen, 2022)** support this finding, suggesting that individuals undergoing mastectomy who felt they had more support from others experienced improved overall health, lower stress, and anxiety levels.

This result was consistent with the research conducted by **(Zhao et al., 2021)**, who showed that acceptance and affirmation of therapy significantly reduced psychological distress in cancer patients. Most study participants reported lower levels of stress and anxiety compared to higher levels before the intervention. In addition, this result was consistent with the findings of a study conducted by **(Atia et al., 2023)** who showed a significant difference in the total score of psychological problems between the study and the control group.

Mastectomy has negatively affected a woman’s marital status and lead to losing sexual interest as chemotherapy and breast reconstruction increase dissatisfaction **(Phoosuwan and Lundberg, 2023)**. The results of the current study showed no statistically significant difference in the mean total scores for ENRICH Marital Satisfaction and its domains between the two groups before the intervention ($P > 0.05$). However, one week and one month after the intervention, the study group reported significantly higher mean total scores for both ENRICH marital satisfaction and its domains compared to the control group. This improvement is likely due to the educational and exercise program,

which probably enhanced social interaction and led to the observed increase in satisfaction.

This result nearly had been in the same harmony with **(Abdallah, et al., 2021)** who found that a highly significant difference was observed between the study and control groups in terms of total marital satisfaction both two weeks after the implementation of the program and after three months of follow-up. Additionally, this result was closely aligned with **(Shahed, et al., 2016)** who noted that in the experimental group, the paired sample t-test showed an increase in marital satisfaction from 24.7 ± 2.6 before the intervention to 32.9 ± 3.5 after the intervention (P = 0.03). In contrast, no significant changes were observed in the control group, with marital satisfaction scores remaining essentially the same, from 26.7 ± 4.6 before the intervention to 26.5 ± 4.8 afterward.

Concerning correlations between study variables, the present result research clarified that; highly statistically substantial positive correlation was found among score of total emotional status and total scores of (pain and fatigue impact) in both groups at pre, one week and one-months post-intervention phases. This means that, the worse emotional status, the worse fatigue impact and pain level and vice versa. The results may be attributed to the fact that reducing fear of the unknown and setting realistic expectations can lead to improvements in both psychological and physical well-being. Additionally, engaging in exercises and gaining knowledge about the disease are factors that can enhance psychological health, which in turn boosts life satisfaction and happiness, thereby reducing fatigue and pain. **(Adesina and Olajire, 2020).**

Conclusion:

The educational-supportive program about therapeutic exercises had a positive effect on women's physical, psychological and marital status undergoing mastectomy; where after implementation, the mean scores of total pain, fatigue impact, shoulder ability and function, depression, anxiety, and stress and marital satisfaction in the study group were significantly greater than the scores in the group of control. So, therefore, the research's hypotheses were supported.

Recommendations:

- Booklet and illustrated pamphlets about therapeutic exercises should be provided for each woman who will undergo modified radical mastectomy; in order to improve their knowledge and thus physical, emotional and marital status.
- The components of the educational-supportive program in current research should be integrated as a main part of the treatment plan provided to women who undergo mastectomy.
- Psychological support and intervention activities should be carried out to help them become more resilient regarding mastectomy.
- Designing educational-supportive programs appropriate for nurses to improve marital satisfaction in mastectomized women.
- Utilizing new teaching strategies, the social media-based instructional guidelines about therapeutic exercises should be carefully developed and implemented for all women having a mastectomy to facilitate their compliance.

Further researches:

- Replication of the study using a larger sample size of women recruited from different geo-graphical areas in order to generalize the results.

- Similar studies are needed to be done for assessing the long-term effect of therapeutic exercises on women's physical, psychological and marital status

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تأثير برنامج تعليمي داعم حول التمارين العلاجية على الحالة الجسدية والنفسية والزوجية للسيدات الخاضعات لعملية استئصال الثدي

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يعد سرطان الثدي مشكلة صحية كبيرة بالنسبة للسيدات في جميع أنحاء العالم . قد يؤدي إزالة أحد الثديين أو كليهما عند السيدات في كثير من الأحيان إلى مضاعفات جسدية ومشاكل عاطفية مثل الاكتئاب والتوتر وايضا مشاكل في العلاقات الزوجية. لذا هدفت الدراسة إلى تقييم تأثير برنامج تعليمي داعم حول التمارين العلاجية على الحالة الجسدية والنفسية والزوجية للسيدات الخاضعات لعملية استئصال الثدي . تم استخدام مصميم شبه تجريبي .وقد اجريت الدراسة في وحدة الكشف المبكر عن سرطان الثدي التابعة لكلية الطب جامعة بنها ووحدة الجراحة العامة وجراحة الأورام على 86 سيدة سيتم تقسيم العينة بشكل عشوائي إلى مجموعتين (مجموعة الدراسة 43 سيدة سوف يتلقين برنامجًا تعليميًا داعمًا حول التمارين العلاجية والرعاية الروتينية في المستشفى؛ بينما المجموعة الضابطة 43 سيدة سوف يتلقين رعاية روتينية في المستشفى فقط) . وتم استخدام ستة ادوات لجمع البيانات؛ الأداة الأولى: عبارة عن استمارة استبيان للسيدات. الأداة الثانية : مقياس تصنيف الألم. الأداة الثالثة: مقياس تأثير التعب المعدل. الاداة الرابعة: استبيان قدرة الكتف ووظيفته. الاداة الخامسة: مقياس الاكتئاب والقلق والتوتر. الاداة السادسة: مقياس الرضا الزوجي. واظهرت النتائج انه بعد تنفيذ البرنامج التعليمي الدعم حول التمارين العلاجية، شهدت مجموعة الدراسة متوسط درجات أقل بشكل ملحوظ للألم والتعب والاكتئاب والقلق والتوتر مقارنة بالمجموعة الضابطة ،علاوة على ذلك، أظهرت مجموعة الدراسة متوسط درجات أعلى بشكل ملحوظ لوظيفة الكتف والرضا الزوجي مقارنة بالمجموعة الضابطة. كما كان للبرنامج التعليمي الداعم حول التمارين العلاجية تأثير إيجابي على الحالة الجسدية والنفسية والزوجية للسيدات الخاضعات لاستئصال الثدي. واوصت الدراسة بأنه يجب تضمين عناصر البرنامج التعليمي الداعم كمكون أساسي لخطة العلاج السيدات الخاضعات لاستئصال الثدي.