Effect of Psycho-educational Program on Depressive Symptoms, Anxiety and Stress Coping Strategies among Women with Breast Cancer

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Abstract

Background Women with breast cancer are commonly suffers from anxiety and depression due to disturbed body image and low self-esteem that negatively impairs their coping strategies and recovery process. So, implementation of psycho-educational program to improve the patient's coping skills was highly needed. **Aim:** This study aimed to examine the effect of the psycho-educational program on depressive symptoms, anxiety, generalized anxiety disorder and stress coping strategies among women with breast cancer. **Research design:** A quasi-experimental research (one group pre/posttest) design was used in this study. **Subjects.** The study subjects consisted of (113) women with breast cancer. **Setting:** This study was conducted in the breast clinics, oncology center at Ain shams University Hospital. **Sample:** A purposive sample was obtained from all available patients with breast cancer during the study period, and approved to participate in the program for six successive months. **Tools for data collection;** the data was collected using; **1)** Women's Interview Questionnaire; to assess what the socio-demographic characteristics and medical history of women understudy. **2)** Mini-Mental Adjustment Scale for Cancer Patients (Mini-MAC), and **3)** Hospital Anxiety and Depression Scale (HADS). **Results:** This study showed a highly statistically significant difference regarding minimizing the total anxiety & depression, generalized anxiety disorder in the post program phase (p<0.01) as compared to the pre-program phase. This study also revealed that there was a highly statistically significant improvement in positive stress coping strategies in the post-program implementation phase (p<0.01) compared to the pre-program phase, includes; fighting spirit, self-control & emotional control, and seeking social support representing 88%, 86%, 77% respectively. Moreover, the current study showed that negative coping strategies have been minimized in the post program implementation phase compared to the pre-program phase includes anxiety & anxious preoccupation, in-active stotic acceptance, distancing & escaping, and denial representing 37%34%, 38%, and 53% respectively. **Conclusions:** Women with breast cancer reported minimized symptoms of depression, anxiety, and generalized anxiety disorder post program implementation compared to the pre-program level. Also, this study revealed that women understudy reported improvement in utilization of positive stress coping strategies and minimized utilization of negative coping strategies post program implementation compared to the pre-program level. **Recommendations:** This study recommends establishment of a counseling clinic to provide psycho-educational training about stress coping strategies for women with breast cancer and their partners or family caregivers to enhance their recovery, and well-being.

Key Words: Breast Cancer, Women, Depressive symptoms, Anxiety, generalized anxiety disorder, Stress Coping strategies, Psychoeducational program.

Introduction:

Breast cancer is the most common cancer among women in both developed and developing countries. It has a higher survival rate than other cancers (1-5). Improvement in the breast cancer survival rate over recent decades has been attributed to progressive development in early diagnosis and the use of adjuvant therapies. In 2020, there were 2.3 million women diagnosed with breast cancer and 685 000 deaths globally. As of the end of 2020, there were 7.8 million women alive who were diagnosed with breast cancer in the past 5 years, making it the world's most prevalent cancer. Breast cancer occurs in every country of the world in women at any age after puberty but with increasing rates in later life. **(WHO, 2021).**

According to **Kang, et al. (2020),** a breast cancer diagnosis can produce stress, anxiety, depression, a sense of lack of control over females' lives, fear, and powerlessness because of their illness. These feelings intensify when deciding on and undergoing complex breast cancer treatments, such as surgery, radiation therapy, chemotherapy, and/or hormonal therapy. They are also having a higher rate of anxiety and depression related to fear of pain, cancer recurrence, and death.

Anxiety can be defined as an unpleasant subjective experience associated with the perception of a real imagined threat and is a common symptom in connection with cancer **(Torralba-Martínez, et al 2022).**

Regarding **Aly, et al. (2017),** anxiety is mainly related to uncertainty about the diagnosis, side effects of chemotherapy or radiotherapy treatment, lack of social or personal control, progressive physical deterioration, and thoughts of near death. Meanwhile, Generalized Anxiety disorder is defined as condition marked by excessive worry and feelings of fear, dread, and uneasiness that last six months or longer. Other symptoms of generalized anxiety disorder include being restless, being tired or irritable, and muscle tension, not being able to concentrate or sleep well, shortness of breath, fast heartbeat, sweating, and dizziness.

In addition, **Farbood, et al (2020)**, was illustrated that patients who are depressed may also have physical symptoms which are difficult to palliate, and which may improve as their depression is appropriately treated. Hence, **Elsheshtawy, et al. (2014),** explained that women with breast cancer often experience symptoms of anxiety, generalized anxiety disorder and depression that impair their ability to mobilize critical support when the need for it is great. Furthermore, they experience a dramatic change in relationships, psychological health including altered body image, poor self-esteem, activities of daily life, physical health including interrupted sleeping patterns, altered eating habits, etc.

Additional causes of depression, anxiety, and generalized anxiety disorder among females with breast cancer were explained by **Cancer Council Australia, (2019),** including poor quality of life, lack of appropriate healthcare, lack of self-confidence, low spirituality, absence of social support and poor decision-making skills, limited information about cancer and its treatment options and expected recovery rate resulting in increased emotional distress and loss of control. Furthermore, **Gröpper, et al. (2016),** added that less effective communication with clinical staff and limited involvement in cancer treatment decision making, and lack of accessible information about their diagnosis and treatment are mostly associated with poor outcomes of care and ineffective coping.

Research has determined that stress coping strategies used by women with breast cancer are a vital component for adjustment to the disease. **Zamanian, et al. (2021),** defined coping mechanisms as innate or acquired methods that individuals used to respond to internal and/or external changes.

Coping is of critical importance not only to psychological health but also to physical wellbeing. The use of stress coping strategies is part of a health-diseases process linked to individual characteristics, personal history, and broader context with subjective, social, cultural, and economic elements. Moreover, identifying the coping mechanisms that patients with breast cancer use, could help to develop strategies to improve their quality of life, improve illness outcomes and alleviate anxiety and depression **(Li, et al. (2015).**

Recently, **Pilevarzadeh, et al., (2019),** explained that a large body of literature in oncology has examined and discussed the styles cancer patients use to stress cope with their disease and the adaptation to illness.

Stress coping strategies were classified by **Todorov, et al. (2019),** as positive coping strategies and negative coping strategies. Positive coping strategies can minimize or even nullify the adverse psychosocial effects of

chronic illness, while negative coping strategies may contribute to depression and anxiety.

Lange (2018), explained that one of the main objectives of nursing is to provide education and detailed information about all those risk factors besides stimulating the adoption of healthy habits for patients with breast cancer including skills to improve restful sleeping, eating healthy food, especially with chemotherapy, stop alcohol or smoking, exercising, massage and Self-care. Moreover, **Briggs, et al. (2020),** noted that nurses play an important role in helping those who suffer from breast cancer in the process of coping by improving their feeling of role mastery and independence. It can be achieved through social skills training e.g., assertiveness training, priority setting and time management, social interaction, and management of stress and anxiety through relaxation, visualization, mindfulness, and mediation.

Significance of the Study:

Patients who receive a diagnosis of breast cancer are generally shocked and upset by their illness, they may also deny their diagnosis to suppress illness-related stress. However, breast cancer patients differ in the extent to which they report feeling of depression, anxiety, and generalized anxiety disorder **(Cohn and Linehan, 2020)**.

To reduce depressive symptoms, anxiety and generalized anxiety disorder among patients with breast cancer, **Guarino, et al., (2020)**, mentioned that an interventional program is highly needed to assist women dealing with various challenges related to breast cancer diagnosis and impose their psychological and physical well-being to cope effectively with their illness.

For this reason, the current psycho-educational program aimed to examine the effect of the psycho-educational program on depressive symptoms, anxiety, generalized anxiety disorder and stress coping strategies among women with breast cancer in order to

enhance their physical, psychological, and social well-being and achieve recovery.

Aim of the study:

This study aimed to examine the effect of psycho-educational program on depressive symptoms, anxiety, generalized anxiety disorder and stress coping strategies among women with breast cancer.

This aim was achieved through the following:
1) Assessing the depressive symptoms, anxiety, generalized anxiety disorder and types of stress coping strategies adopted by the subject's understudy.
2) Accordingly, developing and implementing the psycho-educational program to minimize depressive symptoms, anxiety, generalized anxiety disorder and enhance stress coping strategies among women with breast cancer.
3) Evaluating the effect of this intervention program on depressive symptoms, anxiety, generalized anxiety disorder and stress coping strategies among women with breast cancer.

Research Hypotheses:
1) Women with breast cancer will exhibit minimize in the depressive symptoms anxiety, and generalized anxiety disorder post program implementation compared to their preprogram level.
2) Women with breast cancer will use more positive coping strategies post program implementation compared to the pre-program phase.
3) Women with breast cancer will minimize use of negative coping strategies post program implementation compared to the pre-program phase.

Research design:
A quasi-experimental (single group pre/post-test) design was used to examine the effect of a psycho-educational program on depressive symptoms, anxiety, and stress coping strategies among women with breast cancer.

Sample technique:

A purposive sample of 113 out of 160 women with breast cancer was obtained from all available patients who approved to participate in the psycho-educational program for six successive months based on the study inclusion criteria.

The sample size was calculated according to **Raosoft, (2020)** as the following:

Sample size equation:

$$\text{Sample size, } n = N * \frac{\frac{Z^2 * p * (1-p)}{e^2}}{[N - 1 + \frac{Z^2 * p * (1-p)}{e^2}]}$$

- N = Population size,
- Z = Critical
- value of the normal distribution at the required confidence level equal to 0.95 and 1.96
- P = Sample proportion = 0.50
- e = Margin of error rate is equal to 0.05

Inclusion criteria:
1) Age Range: 18-65 years.
2) Able to read and write.
3) Written consent for participation.
4) Diagnosed with breast cancer within less than 6 months (confirmed by checking patient's medical records).
5) Patients are free from severe psychiatric illness, metastases, severe pain, or disabilities that would prevent their participation in the psycho-educational program.

Study setting:

This study was carried out at the waiting area of the breast clinics, oncology center at Ain shams university hospitals that receives approximately 20-30 patients daily, 5 days/week, from 8 am up to 4 pm. Breast clinics at the oncology center were divided into 3 outpatient daytime examination clinics. It provides its diagnostic, and therapeutic services for patients with cancer, in addition to the chemotherapy administration unit that located on the second floor of oncology center, and provides its services for patients with breast cancer 24 hours/ 7 days per week.

Tools of Data Collection:
The data was collected using four self-administered questionnaires/scales as follows:
1) The Female Patient's Interview Questionnaire:

It consists of three parts: 1) The First Part: contains data pertinent to the patient's demographic characteristics including; age, marital status, having children, breast feeding, level of education, occupation, and monthly income.
2) The Second Part: represents data related to patient's medical history of illness including; duration of symptoms, current stage of breast cancer, family history of breast cancer, degree of relativeness, signs and symptoms of breast cancer upon diagnosis, history of regular breast self-examination, history of chronic illness, personal history of another type of cancer, type prescribed treatment, and negative impact of breast cancer on intimate relationship
3) The Third Part: contains data related to history of the current treatment side effects such as; GIT problems, arms and shoulder pain, loss of hair, fertility problems, sexual problems, lymphedema, and itching or skin cracks.

2) Hospital Anxiety and Depression Scale (HADS):
This scale was developed in English language by **Zigmond and Snaith, (1983),** and adopted by the researchers to measures the depressive symptoms, anxiety, and generalized anxiety disorder among non-psychiatric patients in medical institutions. The HADS includes 14 items (7- items for assessing anxiety & depression, and 7 items for assessing generalized anxiety disorder). Scores for items in each subscale was rated on a 4-points Likert scale (ranging from 0= not at all, sometimes=1, always=2, and often=3. The total score ranging from (0-21) for each subscale. A higher score indicated higher level of anxiety, depression, and generalized anxiety disorder.

The **validity and reliability** of HADS have been validated and assessed by the expert. in this study, the Cronbach alpha was 0.84 and 0.89 on the anxiety and depression subscale

respectively. It took around 10-15 minutes for its completion.

3) Mini-Mental Adjustment Scale for Cancer Patients (Mini-MAC):

This questionnaire was originally designed by **Waston et al. (1994),** and adopted by the researchers. This 40-items questionnaire aimed to assess behavioral and cognitive stress coping strategies among women with cancer.

Mini-MAC Scale identified seven types of stress coping strategies among women with cancer as the following:

1) Fighting spirit (7 Items).
2) Self-Control and Emotional Control (7 Items).
3) Seeking Social Support (6 Items).
4) Anxiety and Anxious preoccupation (6 Items).
5) In-activity-Stoic Acceptance (5 Items).
6) Distancing and Escape (4 Items).
7) Denial (5 Items).

Mini-MAC scale was rated on 4-points Likert scale (ranging from 0, 1, 2, and 3 for the responses (never, sometimes, often, and always) respectively.

Reliability of the **Mini-MAC scale** have been validated and assessed by the expert. It was ranged from 0.86 to 0.90 assessed by measuring of internal consistency level. A Cronbach of at least 0.90 for each scale dimension. **The Content validity** of the scale was 0.97 as rated by women with breast cancer understudy considered significantly high, the coefficient given was 0.921.

Procedures:

This study was conducted on many phases included; a preparatory phase, pilot study, fieldwork, and ethical considerations.

Preparatory phase:

It included reviewing past, current, local, and international related literature, and theoretical knowledge of various aspects of stress coping strategies among women with breast cancer, and the role of psychiatric nurses by using books, articles, periodicals, and other available resources through the internet search. The researchers prepared and designed the tools

for data collection. Then the standardized tools were translated into English language by experts.

An official letter was issued from the faculty of nursing, Ain Shams University, to the director of oncology center at Ain Shams University Hospitals explaining the aim of the study and requesting their permission for data collection.

Pilot Study:

A pilot study was carried out on (12) patients as representing around 10% of the total sample before conducting the actual study in order to ensure clarity of the questions, validity and applicability of data collection tools, and time needed to complete them. In addition to testing the feasibility of the research process. All subjects who were involved on the pilot study were excluded from the main study sample.

Fieldwork:

- Implementation of the psycho-educational program consumed six successive months for all program phases (pre-program assessment, program implementation, and post program implementation). It began during the period from October, 2021, to March 2022.
- To examine the effect of psycho-educational program on depressive symptoms, anxiety, generalized anxiety disorder and stress coping strategies among women with breast cancer, all participants' understudy completed a baseline assessment before the program began during the whole month of October 2021. The data collection tools were distributed to each woman individually and they were asked to complete them by selecting only one response that reflects the actual situation. The researchers asked the participants about any difficulties that faced them during answering the questionnaires and offered help for them.
- Based on the assessment findings, the psycho-educational program was developed by the researchers, and revised by two specialized professor of psychiatric/mental health nursing, before its application to the

women with breast cancer under study on November, 2021.

- For the implementation of the psycho-educational program, the researchers visited the selected setting 3 days per week from 8 am to 2 pm from the first week of December 2021 to the last week of February, 2022. Women understudy were integrated into nine subgroups, each group consists of 12-14 participants, 3 groups on Sunday, 3 groups on Monday, and 3 groups on Wednesday. Each group received a total of (12) sessions (2 introductory/theoretical sessions and 10 practical sessions), each session took from 45 minutes up to one hour.

- The researchers used different teaching methods and media such as lecture discussions, brainstorming demonstrations, real-life situations, and colored handouts during the implementation of psycho-educational program.

Contents of the psychoeducational program:

The psycho-educational program was divided into two main parts including:

Part I: Theoretical & introductory Part (2 sessions);

It included general information about breast cancer includes meaning, signs & symptoms, causes, stages, diagnostic investigation, and treatment models. It is also included information about physical, psychological, and social stressors experienced by women with breast cancer and impaired effective coping with illness including shock and disbelief, fear and anxiety, anger, guilt and blame, sadness and depression.

Part II: Practical Training Part (10 sessions):

The psycho-educational program was used to train the women with breast cancer on skills to enable them to cope effectively with cancer related stressors and minimize their anxiety, depressive symptoms and generalized anxiety disorder including:

1) Social skills training e.g., time management, priority setting, and seeking social support (**one** session).
2) Management of treatment side effects through the care of lymphedema, hair loss, and breast reconstruction (**2** sessions)
3) Stress reduction techniques using complementary therapy e.g., relaxation training, deep breathing exercises, massage, guided imagery, acceptance & positive outlook to the future, seeking information about the disease & treatment options (**2** sessions).
4) Healthy lifestyle practices e.g., eating healthy food maintaining ideal body weight rest, sleeping, and exercising (**2** sessions).
5) Self-concept, self-esteem and body image (use of artificial hair/breast, and breast reconstruction surgery) (**2** sessions).
6) Spiritual practices, and spiritual commitment (**one** session).

- The researchers informed the participants that their progress, home assignments, and any faced difficulties will be followed up through phone contact until the next meeting.

- Post-test was done during the whole month of March, 2022. Completion of the data collection tools took about 30-35 minutes.

Ethical Considerations:

At the initial interview, the researchers met each woman individually and introduced themselves; explained the purpose and nature of the study; and ensured the confidentiality of the data. Women were asked if they were interested and agreed to participate in the study, and the researchers emphasized that participation would be voluntary; hence every patient had the right to participate or refuse to be included in the work, and they were informed about the right to withdraw at any time without giving any reasons, and without any consequences. The consent for participation was taken written. In addition, the confidentiality of any gathered data was assured, and printed in the data collection tools.

Statistical Analysis:

Data entry and statistical analysis were done using the computer software for excel

program and statistical package for social science SPSS 23.0. Data were presented using descriptive statistics in the form of frequencies and percentages for the categorical data. Continuous variables were summarized as means and standard deviations (SD), Paired sample, t. test, Mena whiten, and Pearson correlation. Statistical significance was considered at a p-value <0.05 was used to identify the significance in a group before and after the psychoeducational program implementation, the significant value was set at value <0.05.

Results:

Table (1): revealed that the mean age of women with breast cancer understudy was 42.45±9.93 years. The majority of participants understudy were married (68%) and had children who received no breastfeeding representing 71% and 60% respectively, whereas only 10% of them had higher academic education. 70% percent of patients understudy were housewives, while more than half (52%) had monthly income less than 2000 LE.

Table (2): illustrated that 60% of participants were in the 2nd stage of breast cancer, and most of them (71%) had a positive family history of breast cancer specifically for their first-degree relatives. 58% of them were diagnosed with breast cancer due to breast mass and enlarged auxiliary lymph nodes with negative history of breast self-examination among 64% of them. while near two thirds of them (68%) had positive history of chronic physical illness and comorbidity. In addition, the current study showed that the majority (90%) of women with breast cancer under study had a negative personal history of another type of cancer, Moreover, the present study found that near two thirds (68%) of women receiving chemotherapies experienced negative impact of treatment on their intimate relationship with partners.

Table (3): indicated that the majority of women with breast cancer understudy suffer from treatment side effects including GIT

problems, pain, loss of hair, fertility problems, and sexual problems (dyspareunia, decrease vaginal discharge, and lack of sexual desire) representing 87%, 83%, 77%, 69%, and 68% respectively, while 26% were suffering from lymphedema after mastectomy.

Table (4): showed a highly statistically significant difference regarding minimizing the total anxiety & depression, generalized anxiety disorder, and total distress in the post program phase p<0.01 as compared to the pre-program implementation phase.

Table (5): showed that there was a highly statistically significant improvement in stress coping regarding all strategies in the post program implementation phase p<0.01 as compared to a pre-program phase, including fighting spirit, self-control & emotional control, and seeking social support, representing 88%, 86%, and 77% respectively. Meanwhile, negative coping strategies were minimized significantly after program implementation includes anxiety & anxious preoccupation, in-active stoic acceptance, distancing & escaping, and denial representing 37%34%, 38%, and 53% respectively.

Table (6): illustrated a highly statistically significant relationship between patient's stress coping strategies, total anxiety & depression, and total generalized anxiety disorder among women understudy.

Table (7): illustrated that there was a highly statistically significant relationship between women's stress coping strategies and women's age, marital status, and occupational level (p<0.05). While there was no statistically significant relationship between stress coping strategies among women understudy and having children, breast feeding, level of education and monthly income (p>0.05).

Table (8): there was a highly statistically significant relationship between women's total anxiety, depression mean score, their ages, and educational level (p<0.05). While there was no

statistically significant relationship between total anxiety and depression mean score among women understudy and their marital status, having children, breast feeding, occupational level and monthly income (p>0.05).

Table (9): illustrated that there was a highly statistically significant relationship between women's understudy total anxiety and depression mean score and their duration of symptoms before diagnosis, family history of breast cancer, and history of regular breast self-examination (p<0.05). While there was no statistically significant relationship between total anxiety and depression mean score among women understudy and their current stage of breast cancer, degree of relativeness, signs and symptoms of breast cancer upon diagnosis, history of chronic physical illness, personal history of another type of cancer, type of treatment, and negative impact of breast cancer on intimate partner relationship (p>0.05).

Part I: Demographic Characteristics

Table (1): Frequency and percentage distribution of women with breast cancer under study according to their sociodemographic characteristics demographic characteristics of: (n=113).

Items	Patients with Breast Cancer	
	No.	**%**
Age (Years):		
<30	17	15
30< 60	86	76
60+	10	9
Mean ± SD	**(42.45±9.93)**	
Marital Status:		
Married	77	68
Single	21	19
Widowed	15	13
Having Children:		
Yes	80	71
No	33	29
breastfeeding		
Yes	68	60
No	45	40
Level of Education:		
Read & Write	81	72
Primary Education	20	18
Academic Education	12	10
Occupational Level:		
Housewife	81	72
Student	2	2
Professional Work	19	17
Technical Work	3	3
Retired	8	6
Monthly Income (L.E):		
<2000	59	52
2000-<5000	32	29
More than 5000	22	19

Table (2): Frequency and percentage distribution of studied women with breast cancer according to their medical history (N=113).

Items	Patients with Breast Cancer	
	No.	%
Duration of Symptoms Prior to Diagnosis:		
Week-< Month	28	25
Month-< 3 Months	63	56
+ 3 Months -> 6 Months	22	19
Current Stage of Breast Cancer:		
1st Stage (Local Cancer without Metastases)	15	13
2nd Stage (Local-Regional Metastases)	68	60
3rd Stage (Local-Advanced)	20	18
4th Stage (Distance Metastases)	10	10
Family History of Breast Cancer:		
Yes	80	71
No	33	29
Degree of Relativeness:		
1st Degree Relatives (Mother or Sister)	60	53
2nd Degree Relatives (Aunt or Grandmother)	53	47
Signs and Symptoms of Breast Cancer upon Diagnosis:		
Breast Mass& Enlarged Auxiliary Lymph Nodes	65	58
Nipple Discharges and Inversion	48	42
History of Regular Breast Self-Examination:		
Yes	41	36
No	72	64
History of Chronic physical illness (Comorbidity):		
Yes	77	68
No	36	32
Personal history of another type of cancer:		
None	102	90
Gastrointestinal	8	7
Genitourinary	2	2
Blood	1	1
Type of prescribed treatment (Answers are Not Mutually Exclusive):		
Surgical Intervention		
Chemotherapy	29	26
Radiation Therapy and Hormonal Therapy	77	68
	7	6
Negative Impact of Breast Cancer on Intimate Relationships:		
Yes	77	68
No	36	32

Table (3): Frequency and percentage distribution of studied women with breast cancer regarding their current history of treatment side effects (N=113).

Types of Treatment Side Effect	No.	%
GIT problems	98	87
Arm and Shoulder Pain	94	83
Loss of Hair	87	77
Fertility Problems	78	69
Sexual problems (Dyspareunia, decrease vaginal discharge, lack of sexual desire)	77	68
Lymphedema	29	26
Itching or skin cracks	7	6

Answers are not mutually exclusive

Part II. Table (4): Comparison of the studied women's total anxiety and depression mean score pre-and-post program implementation (n=113).

Total Anxiety & Depression And Generalized Anxiety Disorder	Distress Score (max=100)				(p-value) Pre-post
	Pre-Program		Post Program		
	Mean ±SD	Median	Mean ±SD	Median	
Anxiety and depression	94.9±15.0	40.00	29.0±17.5	80.00	p <0.001**
Generalized anxiety disorder	76.1±25.9	28.60	27.8±16.1	71.40	p <0.001**
Total:					
Higher distress +50%	85.5	31.1	28.4	71.1	p <0.001**
Lower distress <50%	14.5	68.9	71.6	28.9	

(*) Statistically significant at p<0.05, (**) statistically highly significant at p<0.001

Part III: Table (5): Comparison between stress coping strategies among women with breast cancer understudy pre and post program implementation (n= 113).

Stress coping strategies	Program phases		Mean Difference	Paired t-test	p-value
	Pre (n=113) %	Post (n=113) %			
Fighting Spirit	23	88	41.500	12.248	<0.001**
Self-Control and Emotional Control	21	86	42.857	15.834	<0.001**
Seeking Social Support	35	77	34.167	7.050	<0.001**
Anxiety and Anxious Preoccupation	84	37	43.76	6.920	<0.001**
In-active stoic acceptance	77	34	30.90	11.532	<0.001**
Distancing and escape	83	38	31.51	12.541	<0.001**
Denial	79	53	28.750	7.667	<0.001**

(*) Statistically significant at p<0.05, (**) statistically highly significant at p<0.001

Table (6): Correlations matrix between stress coping strategies, anxiety & depression and total generalized anxiety disorder among women with breast cancer understudy (n=113).

Stress coping strategies	Total Anxiety and depression		Total Generalized anxiety disorder		Total	
	r- test	p-value	r- test	p-value	t-test	p-value
Fighting Spirit	0.5	0.001**	0.5	0.001**	0.4	0.001**
Self-Control and Emotional Control	0.9	0.001**	0.5	0.001**	0.5	0.001**
Seeking Social Support	0.3	0.001**	0.5	0.001**	0.5	0.001**
Anxiety and Anxious Preoccupation	0.6	0.001**	0.8	0.001**	0.5	0.001**
In-active stoic acceptance	0.5	0.001**	0.5	0.001**	0.7	0.001**
Distancing and escape	0.7	0.001**	0.5	0.001**	0.3	0.001**
Denial	0.7	0.001**	0.5	0.001**	0.5	0.001**
Total	0.5	0.001**	0.8	0.001**	0.8	0.001**

(*) Statistically significant at p<0.05, (**) statistically highly significant at p<0.001

Table (7): Relationship between the demographic characteristics of studied women with breast cancer and stress coping strategies pre and post-program implementation (n=113).

Demographic data	Stress Coping Strategies		X2	p-value
	pre %	Post %		
Age (Years):				
<30	50	79		
30< 60	42	65	0.08	0.05*
60+	28	46		
Marital Status:				
Married	77	84		
Single	44	56	0.98	0.041*
Widowed	23	46		
Having Children:				
Yes	56	51	0.12	0.882
No	83	84		
breastfeeding				
Yes	69	88	3.31	0.763
No	87	90		
Level of Education:				
Read & Write	65	76		
Primary Education	91	92	0.91	0.448
Academic Education	23	90		
Occupational Level:				
Housewife	44	76		
Student	56	57	4.37	0.05*
Professional Work	42	78		
Technical Work	34	83		
Retired	32	57		
Monthly Income (L.E):				
2000	33	48		
2000-<5000	35	65	1.18	0.344
More than 5000	73	42		

(*) Statistically significant at $p<0.05$, (**) statistically highly significant at $p<0.001$

Table (8): Relationship between demographic characteristics of studied women with breast cancer and total anxiety and depression mean score pre and post-program implementation (n=113).

Demographic data	Total anxiety and depression		Mann Whitney test	p-value
	pre Mean ±SD	Post Mean ±SD		
Age (Years):				
<30	62.6±14.6	42.6±14.6		
30< 60	92.6±7.1	32.6±7.1	0.39	0.05*
60+	87.4±8.1	87.2±3.1		
Marital Status:				
Married	90.0±1.6	60.0±32.6		
Single	67.7±8.5	53.7±8.5	1.36	0.27
Widowed	45.7±8.5	35.7±5.5		
Having Children:				
Yes	87.6±8.9	86.3±11.9	0.25	0.77
No	80.4±9.2	67.4±9.2		
breastfeeding				
Yes	88.9±12.1	46.9±12.1	0.05	0.82
No	83.9±3.4	63.9±3.4		
Level of Education:				
Read & Write	91.2±3.9	51.2±8.9		
Primary Education	88.6±15.3	68.6±15.3	1.93	0.05*
Academic Education	90.4±2.6	50.4±12.6		
Occupational Level:				
Housewife	91.4±8.7	31.4±8.7		
Student	71.0±21.6	26.0±21.6	0.18	0.67
Professional Work	58.7±8.5	28.7±8.5		
Technical Work	71.0±21.6	61.0±21.6		
Retired	88.7±8.5	58.7±8.5		
Monthly Income (L.E):				
2000				
2000-<5000	91.4±8.7	81.4±8.7		0.77
More than 5000	96.0±21.6	93.0±21.6	0.43	
	88.7±8.5	79.7±8.5		

(*) Statistically significant at p<0.05, (**) statistically highly significant at p<0.001

Table (9): Relationship between the medical history of studied women and total anxiety and depression mean score pre-post-interventionism (n=113).

Medical History	total anxiety and depression		X^2	p-value
	Pre Mean ±SD	Post Mean ±SD		
Duration of Symptoms Prior to Diagnosis:				
Week-< Month	91.2±2.9	71.2±8.9		
Month-< 3 Months	88.6±5.3	43±14.3	0.06	0.05*
+ 3 Months -> 6 Months	50.4±12.6	30.4±11.6		
Current Stage of Breast Cancer:				
1st Stage (Local Cancer without Metastases)	92.4±1.9	71.2±8.9		
2nd Stage (Local-Regional Metastases)	88.6±6.3	80.4±11.6		
3rd Stage (Local-Advanced)	90.4±2.2	87.2±8.9		
4th Stage (Distance Metastases)	95.5±2.6	83±14.3	0.91	0.882
Family History of Breast Cancer:				
Yes	70.4±2.2	24.2±1.9	0.02	0.041*
No	95.5±2.6	66±14.3		
Degree of Relativeness:				
1st Degree Relatives (Mother or Sister)	70.4±2.2	97.2±1.4		0.763
2nd Degree Relatives (Aunt or Grandmother)	95.5±0.6	63±4.3	2.37	
Signs and Symptoms of Breast Cancer upon Diagnosis:				
Breast Mass& Enlarged Auxiliary Lymph Nodes	73.4±2.2	69.2±1.9		
Nipple Discharges and Inversion	65.5±2.6	53±1.3	0.61	0.448
History of Regular Breast Self-Examination:				
Yes	70.4±2.2	74.2±1.9	4.37	0.05*
No	65.5±2.6	63±14.3		
History of Chronic physical illness (Comorbidity):				
Yes	78.5±3.1	78.2±2.6		0.601
No	92.5±1.4	43±4.0	3.36	
Personal history of another type of cancer:				
None				
Gastrointestinal	63.1±3.2	79.2±1.8		
Genitourinary	69.5±1.8	43±2.5		
Blood			0.61	0.448
Type of treatment (Answers are Not Mutually Exclusive):				
Surgical Intervention	89.2±1.9	71.2±8.9		
Chemotherapy	88.6±6.3	81.4±8.6		
Radiation Therapy and Hormonal Therapy	90.4±2.2	87.2±8.9	1.18	0.344
Negative Impact of Breast Cancer on Intimate Relationships:				
Yes	70.4±2.2	74.2±1.9		
No	65.5±2.6	63±14.3	1.24	0.123

(*) Statistically significant at p<0.05, (**) statistically highly significant at p<0.001

Discussion:

Anxiety and depression are the most common psychological problems encountered in patients with cancer, and leading to utilization of negative coping behaviors that adversely affects the patient's health.

Accordingly, this study aimed to examine the effect of psycho-educational program on depressive symptoms, anxiety, and stress coping strategies among women with breast cancer.

Concerning the demographic characteristics of women with breast cancer understudy, the

current study revealed that the mean age of the participants understudy were 42.4 years. It can be due to hormonal changes especially estrogen and progesterone during middle age and before menopause, this finding was supported by the study conducted by **Alagizy, et al. (2020),** who found that the average risk of women developing breast cancer was 1 in 173 the age of 40 years due to hormonal disturbances especially estrogen and progesterone made by their ovaries (known as endogenous estrogen and progesterone). They explained that being exposed for a long time and/or to high levels of these hormones caused by starting menstruation early, going through menopause late, being older at first pregnancy, and never having given birth.

The present study reported that the highest percentage of women with breast cancer understudy were housewives with lower educational level, and lower monthly income less than 2000 LE. It can be due to lack of resources and inadequate fund for routine screening mammogram, lack of breast cancer awareness specifically among women with lower educational awareness, lack of health awareness about breast care measures, and other risk factors like obesity and lack of breast feeding. This study results were supported by the findings of **Asad, et al., (2021),** who found that breast cancer increased in illiterate and low social class women, specifically who had overweight, smoking, or chronic physical illness. They mentioned that uneducated women from low socio-economic class are more prone to breast cancer due to lack of breast cancer awareness, limited finical ability to perform regular breast screening or even ability to make regular breast self-examination in absence of the governmental support

Regarding the medical history of women with breast understudy, his study noticed that more than half of the participants were in the 2nd stage of breast cancer and the majority of them had a positive family history of breast cancer specifically for first degree relatives. This is due to the impact of genetic predisposition to breast cancer and hereditary. These study results were agreed by **El Haidari, et al. (2020),** who

mentioned that a woman's risk for breast cancer is higher if she has a mother, sister, or daughter (first-degree relative) or multiple family members on either her mother's or father's side of the family who has had breast or ovarian cancer.

In reference to the current history of treatment side effects, the current study indicated that most of women with breast cancer understudy suffers from treatment side effects including GIT problems, arm and shoulder pain, and loss of hair, fertility problems, and sexual problems (anorgasmia, decrease discharge, lack of sexual desire). It can be due to extensive effects of chemotherapy on the normal as well as the abnormal body cells to fight the malignant tumor but affects adversely the body system. These study results are in harmony with **Mario & Eric (2018),** who explained that using chemotherapy for the treatment of breast cancer raises issues of long-term side effects, including the induction of early menopause, fertility impairment, amenorrhea, and other adverse effects including loss of hair, lymphedema, & Arm and Shoulder Pain secondary to mastectomy or lumpectomy.

In relation to the first study hypothesis, related to minimizing depressive symptoms, anxiety, and generalized anxiety disorder among women with breast cancer under study, this study shows that there was a highly statistically significant regarding minimizing of anxiety and depression, generalized anxiety disorder, and total distress in the post phase as compared to the pre-program implementation phase. This might be attributed to the effect of the psycho-educational program the in reduction of stress through relaxation training problem-solving skills, seeking social support, management of negative thoughts, and spiritual practices that enabled her to achieve more disease compliance and raised their self-esteem and hope to achieve recovery. These results are incongruent with the results of **Nasr, (2017),** who found that anxiety and depression were minimized among female patients with breast cancer due to seeking social support, acquiring problem-solving skills, and spiritual commitment.

In this perspective, **Wyld, et al., (2018),** reported that high levels of anxiety were associated with psychological maladjustment, including hopelessness, and helplessness in response to the diagnosis and low internal locus of control that necessitate psychological intervention to ameliorate the adverse effects of anxiety and generalized anxiety disorder on recovery process. Furthermore, **Costa, et al. (2017),** illustrated that cancer patients who go through episodes of depression and generalized anxiety disorder make the entire experience with cancer more difficult, and weaken the patient's resilience. It also can undermine all patient's life and compromise their courage, and urge the patient's needs to face cancer and endure the necessary medical treatment. **Borré-Ortiz, et al. (2018),** were also added that cancer treatment has improved the long-term survival of women with breast cancer; however, women continue to suffer substantial psychological distress (symptoms of depression, anxiety, and major depressive disorder) during treatment that influence cancer recovery significantly.

Concerning to the second study hypothesis which proposed that women with breast cancer will use more positive coping strategies and less negative coping strategies post program implementation compared to the pre-program phase. The present study results supported this hypothesis where the findings illustrated that there was a highly statistically significant improvement in utilization of positive stress coping strategies after program implementation compared to the pre-program implementation phase. It can be attributed to the positive effects of the psycho-educational program that trained them in the healthy coping strategies against stress including fighting spirit, acceptance, and self-control. This result was agreed by **Gall, & Bilodeau, (2020),** who added that spirituality is an important coping strategy specifically for religious believers and prayer. It serves as a source of comfort and can aid in accepting cancer which can reduce stress and improve the quality of life among patients with breast cancer as acceptance of breast cancer is associated with better emotional wellbeing and an increased sense of peace and meaning in life.

Moreover, **Henke, Wujcik, and Holmes (2020),** mentioned another important aspect of coping with breast cancer. They explained in their study that nurses has an important role toward female patients with breast cancer in order to enhance their coping with diseases stressors and challenges. They added that nurses 'can facility spiritual-centered communication harmoniously and help the patient reaches a remarkable degree of harmony in her mind, body, and spirit, which internecine her feeling of satisfaction, and minimizes symptoms of anxiety and depression.

Moreover, **Tsaras, et al., (2018),** reported that the more frequent coping strategies that female patients with breast cancer use are seeking social support, positive reframing and reappraisal behaviors as problem-focused strategies, religious/spirituality focused efforts, emotional expression as positive emotion-focused strategies, avoidance a, and distraction as avoidance-oriented strategies. He also found that seeking social support and emotionally focused efforts were the main coping strategies that women with breast cancer diagnosis used in the early phase of a breast cancer diagnosis.

According to fighting spirit as the most common positive coping strategies among patients with cancer, the current study shows that most women under study utilized fighting spirit as a coping strategy to minimize their breast cancer-associated stress. This result is in harmony with **Mehrabi, et al. (2015),** who reported that fighting spirit, haplessness, anxious preoccupation, fatalism, and cognitive avoidance were the most common coping strategies used by patients with breast cancer. Moreover, they mentioned that two factors (hopeless and anxious preoccupation were found to be highly correlated with the anxiety and depression subscales of the hospital anxiety and depression scale (HADS).

Regarding to the third hypothesis of the present study regarding to minimize use of negative coping strategies post program implementation compared to the pre-program phase compared to the pre-program phase, the results of the current study supported this hypothesis, where this study has been found that

negative coping strategies including anxiety and anxious preoccupation, in-active stoic acceptance, distancing, and escape and denial has been minimized in the post program implementation phase as compared to the pre-program implementation phase. This improvement could be because the effect of the psycho-educational program that trains the patients about healthy lifestyle practices, implementation of complementary therapy, using cosmetics and artificial breast/hair, and pain management skills that improve using of positive coping strategies. These results were agreed with the study conducted by **Torralba-Martínez, et al. (2022),** who explained that the problem-focused coping strategies for stress reduction can minimize negative coping strategies like avoidance followed by the patients with breast cancer due to their fear of uncertainty, fear of death, or inability to care for their family members and carry out her activities of daily life due to treatment side effects.

Moreover, **Borré-Ortiz, et al. (2018),** clarified that patients who tend to use negative coping strategies in dealing with chronic illness may be more likely to feel depressed and anxious. From this perspective, **Rahou, et al. (2016),** was mentioned that due to the o physical and psychological impact of breast cancer, coping strategies are essential for adaptation. They also added that various strategies exist to assist women in coping with breast cancer surviving positive reappraisal, seeking social support, prayer, and spirit problem-solving led solving. Other coping strategies used by a patient diagnosed with breast cancer were explained by **Odwan, and Khalaf, (2018),** as negative coping strategies including distancing, escape & avoidance, and confronted coping.

According to **Hammoudeh, Hogan & Giacaman (2017),** cancer is cataloged as a disease that affects the woman at the psychological and social level; it brings the idea of suffering and death. Thus, when a woman is diagnosed with breast cancer, she goes through a series of changes and spiritual crisscross breaks her biopsychosocial balance. In response, **Al-Musa, Awadalla & Mahfouz, (2019),** was also clarified that female with breast cancer usually performs adaptive behaviors to overcome the challenges associated with their illness and regain their balance again which implies that patients suffering from this type of disease tend to require interdisciplinary and long-term care, commonly known as palliative care.

This study results was in a harmony of the study of **Hajian, (2017),** who identified seven coping strategies among patients with breast cancer. They mentioned that four measures (avoiding people, blaming oneself, getting angry at people, and going alone with oneself were significantly associated with poor survival rate while expression of emotion, wishful thin problem-solving, and positive reappraisers were associated with better survival rate from breast cancer

This study also illustrated that most of subjects under study were newly diagnosed with breast cancer within 3 months and there was a highly statistically significant relation between woman's total anxiety and depression mean score and their duration of symptoms before diagnosis where the level of distress was higher during the first 3 months after diagnosis of breast cancer. It can be explained due to the fact that the psycho-educational program extended for 6 months where signs and symptoms of depression and anxiety generally decreased with the effective utilization of positive coping strategies and a healthy lifestyle along time. This result was supported by the findings of **Hu et al. (2021),** who noticed that the psychological intervention was beneficial to women with breast cancer in decreasing depression and anxiety through training them on regular social interaction and awareness about stress reduction techniques. Moreover, the study results are also supported by **Ellawindi, et al. (2021)**, who found that most women with breast cancer experienced anxiety and depression within 3 months of their initial surgery. In addition, they identified anxiety disorder in 49% of women with breast cancer and depressive illness in 37.2% during the first 3 months after their initial surgery.

As mentioned by **Chan, et al. (2020),** Females diagnosed with breast cancer need to receive advice and support during treatment and

rehabilitation to enable them to reintegrate into their lives. Nursing consultation sessions should include post-surgical care, psychological support, healthy lifestyle habits, management of negative emotions, positive coping strategies and tolerance to stress, spiritual care, skills to improve body image, social and emotional support provided by nurses, psychologists, physicians, or other healthcare providers to help the patients to cope with psychological stress and reduce the level of depression and anxiety and symptoms related to disease and side effects of treatment. **Zamanian, et al. (2021),** also added that a multidisciplinary clinical care session is one of the interventions that can improve the effectiveness of care provided and can contribute to patient's adaptation.

The present study also showed a highly statistically significant difference in self-control and emotional control among female patients with breast cancer after program implementation compared to the -program phase. This may be because the psycho-educational program helped the woman's understudy to manage their negative emotions, cognitive reconstruction, and training that come with stressful events. This study's results were agreed by **Okati-Aliabad, et al., (2022),** who found that training breast cancer patients on the effective use of positive coping strategies would improve emotional control and establish effective emotional balance through control of emotions from stressful situations.

This study's results revealed that the majority of patients understudy seeking social support strategies to cope with their illness after program implementation. This significant change in behaviors may be due to the positive effects of psycho-educational program that enhance the women's knowledge and information regarding the positive impact of social support on their recovery through minimizing distancing and escape. This study findings were congruent with **Henke, Wujcik, and Holmes (2020),** who stated that psychiatric nursing intervention could promote social interaction, minimize social distancing,

avoidance and escape and improve depressive symptoms and anxiety.

The current study results displaced that there was a highly statistically significant relation between woman's' total anxiety and depression mean score and their ages, and educational level. It can be because a high educational level among patients with breast cancer that enables them to cope positively with their stressors, and implement the coping strategies like seeking social support, religious practices, and other cognitive coping skills to minimize their depression and anxiety. This study result is agreed by **Fasano, et al., (2020),** who reported that higher educational level and lower age were identified as related factors to the use of cognitive defense coping strategies to cope with breast cancer.

Conclusions:

The current study concluded that:

- Women with breast cancer reported minimized symptoms of depression, anxiety, and generalized anxiety disorder post program implementation compared to the pre-program level.
- Women with breast cancer understudy reported improvement in utilization of positive stress coping strategies post program implementation compared to the pre-program level.
- Women with breast cancer understudy reported minimized utilization of negative coping strategies post program implementation compared to the pre-program level.

Recommendations:

On the light of the current results, this study recommends the following:

- Establishment of a counseling clinic to provide knowledge and training about coping strategies for women with breast cancer and their partners or family caregivers.

- Conduct further studies to examine the relationship between sociodemographic characteristics of women with breast cancer e.g., education, occupation, marital status, place of residency, etc., and types of coping strategies used to alleviate psychological stressors.
- Further in-depth studies of breast cancer depression & anxiety, coping, knowledge, and perception among the minority groups including males, and elder females.

Limitation of the study:

- The sample for this study was drawn from women who receive follow-up cancer in the oncology center at Ain Shams University, therefore generalization of these findings to other patients living in other geographic regions is limited.
- Also, the current study involved a limited number of patients to generalize the results to the Egyptian population.

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