Effectiveness of a Nursing Intervention Based on Acceptance Commitment Therapy on Stress, Marital adjustment, Sleep quality, and Fatigue among Patients with Breast Cancer

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Abstract

The most common kind of cancer among Egyptian women is breast cancer. Most patients present at a late stage with subsequent poor outcomes. It ranks as the second-most common malignant tumor in women and the most common cause of cancer-related death. **Aim:** to evaluate effectiveness of a nursing intervention based on acceptance commitment therapy on stress, marital adjustment, sleep quality, and fatigue among patients with breast cancer. **Design:** Aquasi-experimental design was utilized. **Setting:** The study was conducted at the Menoufia University Hospital's oncology outpatient clinic in Egypt's Menoufia Governorate. **Sample:** Sixty adult breast cancer patients were selected by purposive sample. **Tools:** Four tools used; (1) Depression, Anxiety and Stress Scale (DASS); stress self-reported subscale(2) Marital adjustment Scale(3) Pittsburg sleep quality index(4) Piper Fatigue Scale. **Result:** shown that after two months of intervention, When compared to prior intervention, there was a highly significant difference (p = 0.00) between the study and control groups in terms of the total mean score for fatigue, stress, sleep quality, and marital adjustment. When compared to the control group, there was a highly statistically significant negative correlation between the study group's marital adjustment and their overall scores for fatigue, stress, and sleep quality (high scores indicate poor sleep quality).**Conclusion:** Acceptance commitment therapy-based nursing intervention improves stress, marital adjustment, quality of sleep, and fatigue in breast cancer patients. **Recommendation: -** Acceptance commitment therapy should be the foundation of non-pharmacological cancer treatment for many malignancies.

Keywords: Acceptance and commitment therapy; breast cancer, fatigue, marital adjustment, stress, sleep quality

Introduction

Breast cancer is the second-leading cause of cancer-related deaths globally, and the most frequent malignancy in women, according to the World Health Organization **[1].** Breast cancer affects about 1.7 million women each year and is the leading cause of adult female death worldwide **[2].** Breast cancer still accounts for 15% of all cancer-related deaths. More than half of cancer patients experience psychological dysfunctions **[3].** The stress and anxiety that the disease causes is the biggest problem for cancer patients. Patients

who have cancer and receive therapy for it frequently develop physical and mental illnesses**[4][5].** One of the difficulties that cancer patients face is the stress that comes with dealing with their sickness. Cancer diagnosis, treatment, and daily life can all be extremely stressful. Stress can affect the progression, growth, and metastasis of malignant tumors. If the patient's stress is not properly managed, it will negatively affect his or her health**[4][6].**

Patients with breast cancer could experience poorer sleep quality due to psychological factors like perceived stress **[7].** According to a previous study **[8],** stress can have serious physical and psychological effects on patients as well as accelerate the spread of cancer. Patients with breast cancer are more likely than those with other cancers to feel psychological stress because they must deal with the threat that the disease poses to their life as well as accept the possibility of self-image deficits throughout treatment, which will unavoidably result in long-term distress **[7]**. As a result, increasing levels of perceived stress will have a significant impact on the quality of sleep. Breast cancer patients frequently experience sleep difficulties. According to most research, 60% to 90% of breast cancer patients experience sleeps disruptions, which is significantly greater than the prevalence in the general population of healthy people **[9] [10].** Patients who are being treated for cancer go through invasive medical procedures, chemotherapy, radiation, and hormone therapy, among other treatments that could have an impact on their emotional or psychological well-being **[11].**

Cancer patients frequently experience fatigue, which significantly lowers their quality of life **[12].** Fatigue is a mental, permanent, and unpleasant feeling that can result from cancer or its treatments. It can manifest as physical, emotional, or cognitive fatigue **[13].** According to studies, fatigue affects 99% of breast cancer patients receiving chemotherapy **[14].** About 50% of breast cancer patients generally feel moderate to severe fatigue during receiving therapy. Fatigue, which can last months, or even years after therapy is one of the most prevalent adverse effects of cancer treatment **[15]** and more than 25% still feel extremely fatigued after receiving initial cancer treatment**[16] .** After treatment, fatigue has been the most distressing and prevalent symptom among individuals with breast cancer (BC). Although other cancer survivors can also feel tired, women with a history of BC may have particular distinctive characteristics **[17].**

The patient's connections with his family, friends, coworkers, and in his career and financial life change after being diagnosed with cancer **[18]**. Breast cancer patients may have problems like post-operative discomfort, exhaustion, baldness, sadness, fear, degradation in body image perception, social isolation, and anxiety about relapse **[18] [19].** Breast cancer patients frequently experience sexual problems that have a negative impact on their relationships with their spouses **[20].** Partners of those women frequently struggle to maintain the desired degree of sexuality. Because of their anxiety, irritation, and sensitivities to their altered body image, some men are reluctant to engage in sexual activity. According to a research of survival concerns, the patient and her husband frequently had decreased sexual desire prior to therapy. Unpleasant sexual sensations and lack of desire were also described, in addition to the usual side effects of cancer treatment, such as hair loss, body part loss, nausea, and weight loss or gain **[19].** Inadequate marital adjustment not only results in unsatisfactory health outcomes but also raises the risk of death **[21].**

Breast cancer patients have a wide range of requirements, such as ways to manage the distress that comes with it both before and

after cancer treatment. It is crucial to prepare and set up the right social and emotional support systems for these women in order to reduce the negative consequences of the stress brought on by their sickness and treatment **[22].** There are two types of therapeutic approaches for cancer patients: pharmacological and non-pharmacological **[23].** A major component of curative therapy for many malignancies includes chemotherapy, hormone replacement therapy, immunotherapy, and surgery may all be used in addition to or instead of radiotherapy **[24].**

Significant of the study

According to **[25] [26],** breast carcinoma is the most common cancer in women in Egypt and the main reason for cancer deaths in developing nations. Every year, more than 22,000 new cases are identified, making up 33% of all female cancer cases in Egypt **[27]** Following breast cancer treatment, a number of unfavorable side effects often manifest, including trauma, weight fluctuations, hot flashes, and mood swings, as well as altered body image imposed by the removal or alteration of breast tissue. In addition, sexual dysfunction including vaginal dryness, dyspareunia, and orgasm issues, as well as emotional distress caused by her misfortune, which impaired their quality of life **[28].** So, it is crucial to address the challenges faced by patients with breast cancer.

The most prevalent form of cancer in the world, breast cancer carries a high chance of death **[29].** Acceptance and commitment therapy is one psychological support method that has been shown to increase patient survival and improve quality of life (ACT). According to **[30],** ACT strives to minimize maladaptive coping methods and increase psychological flexibility in dealing with life's challenges. Six essential processes are used by the ACT treatment method to improve psychological flexibility. Each of the six stages includes acceptance, cognitive diffusion, and interaction with the present moment, self-in-context, values, and committed action. The fundamental ACT principle is to commit to take actions that will enhance your life while acknowledging that there are things you cannot control **[31].** ACT places a strong emphasis on acceptance while promoting values-based, mindful living. According to studies by **[32] [33],** ACT may improve the quality of life and distress symptoms of cancer patients. Research on how acceptance commitment treatment helps the physical and psychological difficulties breast cancer patients encounter is lacking. The amount of study in this field is insufficient. Determining the impact of a nursing intervention based on acceptance commitment therapy was the aim of this study.

The subjects and procedures

The study's goal

Examine the efficiency of nursing intervention based on acceptance commitment therapy on stress, marital adjustment, quality of sleep and fatigue among patients with breast cancer.

Research design

Quasi-experimental design (study and control group) was used to achieve the study purpose.

Research hypothesis

1- Patients with breast cancer who receive therapy sessions (study group) will experience less stress levels following the intervention than those who don't (control group)

2- Patients with breast cancer who receive nursing intervention (study group) will have better marital adjustment as a result of the intervention than those who do not receive it (control group).

3- Patients with breast cancer who receive nursing intervention (study group) will

report better sleep quality post intervention than those who don't (control group).

4- Patients with breast cancer who receive nursing intervention (study group) will experience less fatigue following the intervention than patients who do not (control group).

Research setting

The outpatient oncology clinic at Menoufia University Hospital – Menoufia Governorate - Egypt.

Research Subject

A purposive sample of 60 adult breast cancer patients were selected.

Sample Size

The mean scores of pain acceptance were considerably decreased by ACT treatment, according to **[31],** who evaluated earlier data (F = 9.58, p 0.05). At 71.70 (17.54) versus 57.55, mean pain acceptability in the intervention group was significantly higher than in the control group (6.72). The sample size was obtained using the following formula:

N = 2SD2 [Z/2 + Z] 2 / d2 for an 80% power and a 95% confidence level. Thus, a total estimated sample of 60 participants was randomly split into two equal groups, each with 30 participants (the study group and the control group).These inclusion criteria were used to choose those patients: Adult patients who have completed their initial surgical and oncological treatments at least two months prior to inclusion, who are agreeable with treatments and free from any mental illnesses.

Data collection tools

Tool 1: It consisted of two portions:

(i) **Interviewing Questionnaire;**

constructed by the researchers to evaluate the socio-demographic characteristics of the patients and past medical history (ii) The Arabic version of the Depression, Anxiety, and Stress Scale (DASS) was assessed for content validity by **[34], [35]**.The scale has a total of 42 items over three self-reported subscales. A 4-point Likert scale with the following values is used to rate the items: 0 for not at all, 1 for somewhat, 2 for most of the time, and 3 for always. The 14-item stress self-reported subscale was employed by the researchers in this investigation. By adding the scores for the pertinent categories, researchers determined the stress scores. Higher scores reflect emotional negativity. Normal (0–14), mild (15–18), moderate (19–25), severe (2–33), and extremely severe (34+) stress levels are included in the scoring system.

Tool 2: Marital adjustment Scale

This is an Arabic scale adopted from **[36]**. It was designed to measure the marital adjustment among married women. 30 questions were included, with responses worth 5 points each. Likert scale with the options "never" (1) and "always" (5). Some of the items (3, 5, 8, 13, 14, 22, 23, 24, 26, 28, and 30) have negative statements and are evaluated adversely. The range of the total rating was (30-170). Poor marital adjustment is represented by a score of 30 to 70, moderate marital adjustment is represented by a score of 71 to 110, and strong marital adjustment is represented by a score of 111 to 150.

Tool 3: Pittsburg sleep quality index (PSQI):

It was created by **[37]** and the researchers translated it into Arabic. It measures numerous distinct elements of sleep and consists of 19 components. Every question is graded on a likert scale of 0 to 3, where 0 denotes little difficulty and 3 denotes extreme difficulty. The overall score on this questionnaire ranges from 0 to 21, with higher scores denoting poorer sleep quality. A score of less than 5 indicates that the respondent has a sleep disorder.

Tool 4: Piper Fatigue Scale (PFS)

It was created by **[38]** to evaluate the patient's complaints of unusual or extreme fatigue while they are ill, getting therapy, or recovering from a disease. It consists of 22 items; response to these items was recorded on ten point scored measurements from 0 to 10, where zero indicates no fatigue and ten indicate sever fatigue. For calculation of total fatigue score: The severity codes are range from 1-3 indicate mild degree, range from 4-6 indicate moderate degree, and range from 7-10 show severe degree. To keep the score on the same numeric 0 to 10 scale, combine the score of all elements and divide them by 22.

Validity of the Tools

Seven specialists on a panel with backgrounds in both mental health nursing and medical surgical nursing evaluated the study instruments for their face and content validity in terms of their clarity, relevance, and completeness. The required modific-ations were carried out based on the specialists' recommendations.

Reliability of the tools

Using Cronbach's alpha coefficients, the instruments' internal consistency was calculated. Test-retest reliability was used to assess the instruments' dependability, and results showed that it was reliable at 0.79 for the stress subscale, 0.939 for marital adjustment, 0.98 for the Piper Fatigue Scale (PFS), and 0.83 for the Pittsburg Sleep Quality Index (PSQI).

Data Collection Procedure

Ethics-related considerations: The Menoufia University Faculty of Nursing's ethics and research committee granted their clearance. The Director of Hospitals and the leaders of the nurses in the Department of Oncology were sent an official letter by the Dean of the Faculty of Nursing at Menoufia University after the study's goal had been made clear. After being made aware of the study's goals and given the assurance that all information acquired would be kept fully confidential, each participant gave informed consent to take part in it. The study's authors made particular to underline that participation was entirely voluntary and that the data were coded to protect the patients' privacy. The participants were also informed that they might discontinue the study at any moment.

A pilot study was performed on 6 patients (10%) to evaluate all tools for clarity, objectivity, feasibility, and applicability. Additionally, it was done to find any problem associated with administering the tools and estimate the time required for data collecting, then the necessary modifications were made. The current study did not include any of the data from the pilot study.

Data collection process

Beginning in September and ending in December 2021, data were collected throughout a four-month period. All participants who fulfilled the criteria for inclusion actively participated in this study, and the study's 60 participants were randomly divided into two equal groups (study and control group).Control group (30 participants) who don't obtain therapy sessions; study group (thirty participants) who obtain therapy sessions was divided into three groups, each of which contained ten patients. These groups each attended nine sessions, lasted between 60 and 90 minutes, once a week from 10 to 11.30 AM. A posttest was administered after two months had passed since the intervention sessions were finished. The study's application went through three phases (assessment phase, implem-entation, and evaluation phases).

Phase (1): Assessment phase

Once the permission was given, the intended investigation could be continued. The interviewers were placed in a quiet, private place. The participants were informed of the

study's purpose and scope. The above-mentioned research tools were used to conduct an assessment on 60 patients. They were then split into two equal groups; the study group and the control group, using a coin toss.

Phase (2): The implementation phase

When the researchers initially encountered the study group, they informed them that they'll receive nine sessions, eight of which would take place within two months (one day per week), and one of which would actually occur two months post intervention sessions for assessing the effectiveness of the nursing intervention. This was achieved by using a variety of learning strategies, including lectures, seminars, brain storming, and demonstrations, re-demonstrations, examples, and modeling. To help with explanation and serve as a guide for them, a data show, video, photographs, and a booklet was utilized as the media. Each session concluded with a summary, participant feedback, further explanations of any ambiguous content, and homework assignments from the researchers.

Acceptance commitment therapy description

Session 1: It dealt with open communication for identification, group integration, clarity of the purpose, and time allotted for the intervention sessions. Educating patients about treatment sessions and session rules, such as reiterating the security of research data and respecting meeting dates and times, avoiding from talking during other people's conversations, and performing necessary tasks during each session. After that, a pretest was administered to them using research tools.

Session 2: It focused on providing a detailed explanation about the concept and symptoms of breast cancer , determining the severity of each member's disease (illness duration and treatments), including its diagnosis, symptoms and how they affect different aspects of life, medical drugs treatment that are now accessible, as well as non-drug options and their success rates.

Session 3: Increase awareness of how a certain behavior affects, checking the members' upsetting thoughts and feelings, and determining the unsuccessful client's usage of coping mechanisms to deal with these thoughts and feelings. Encourage women with breast cancer to make decisions that will help them achieve their long-term goals and live a life consistent with their values.

Session 4: Being present; elaborating the practice of mindfulness, or being present in the moment, without judging the experience. It requires accepting what is occurring without attempting to predict or alter it. Take just few slow, deep breaths. Place your hands on your belly. Feel your belly expand as you inhale. Feel your belly come in as you exhale. Inhale for one, two, three, and four. Exhale for one, two, three, and four. (Repeat). Notice your belly moving in and out. When a thought arises, simply observe the thought when it arises, as if it were a cloud in the sky. Refocus on your breathing and the way it causes your belly to expand and contract. No matter how many thoughts invade your mind; thoughts and feelings are still existent, but we might become aware of them without instantly reacting to them. It works best if you take what we learn in this group and practice for five to ten minutes every day at home. These strategies will become habitual with repetition.

Session 5: Explaining the concept of acceptance, which is the intentional decision to acknowledge unpleasant experiences as they are without attempting to modify or deny them. It offers opportunities for accepting painful experiences and emotions and makes it easier to accept challenging ideas, emotions, and sensations. It

emphasizes more on acceptance than on avoidance.

Session 6: (Defusing of Thoughts):- After introducing mindfulness exercises, instruct patients to think in a negative thought and record it on paper, ask them how this thought makes them feel. Then encourage them to imagine it evaporating. Patients should be instructed to visualize the thought they drew moving away by setting it on a cloud. It is a strategy designed to change how someone responds to their feelings and thoughts. Defusing is detaching from our thoughts and allowing them to come and go so that they don't influence our behavior.

Session 7: The idea that a person is more than the sum of their experiences, thoughts, and emotions is conveyed by the phrase "self as context." It does, however, provide a different viewpoint that suggests that there is a self-separate from the present experience. There is more to us than just what happens to us. What happens to us affects us, not the other way around.

Session 8: Describing the concept of values and committed behaviors. Values are the features we decide to seek towards it at any specific time. Discussed with patients their values and value-oriented actions help them find valuable direction in their lives by encouraging them to live with fully experiencing their own experiences. We all hold values that influence our actions, whether we are aware of them or not. Encourage patients to use resources that enable them to live their lives in accordance with their values.

Session 9:- Closing and post-test): The patients' attendance and completion of the therapy sessions were acknowledged by the researchers. After two months had passed since the intervention sessions were complete, a posttest was conducted using the research tools to look into how nursing interventions based on ACT affected patients with breast cancer's fatigue, sleep quality, stress levels, and marital adjustment (evaluate the accomplishment of the study's goal).

Phase (3): Evaluation phase:

After the implementation phase, Participants were instructed to seek clarification or ask any questions they might have, and after two months of intervention sessions, a post-test was administered using study tools to evaluate the effectiveness of a nursing intervention based on acceptance commitment therapy on stress, marital adjustment, sleep quality, and fatigue in patients with breast cancer.

Statistical Analysis

On an IBM compatible computer, The SPSS (Statistical Package for the Social Science) version 22 was used to tabulate and evaluate the data that were obtained. There were two separate statistical investigations: 1) Descriptive statistics: for qualitative data, they were presented as number and percentage (No &%), and for quantitative data, as mean and standard deviation (X+SD). 2) Analytical statistics: Paired sample t-tests were used to compare two means pre- and post-intervention, which were shown as mean & standard deviation (X SD) in the quantitative data. While a separate t test was used to compare two means across different groups.

- P-value > 0.05 to be statistically insignificant.
- P-value ≤ 0.05 to be statistically significant.
- P-value ≤ 0.001 to be highly statistically significant.

Results

Table (1): demonstrates that the demographic characteristics of the study and control groups didn't differ significantly (p>0.05). In the study group, (46.7%) of them had secondary education and 90.0% were house wife. all the participants in the study group and control group were from rural areas.

Table (2): It shows that there was no significant difference between the two groups about their medical history with p>0.05. Less than three-quarters of the study group and the majority of the control group (73.3% and 90.0%, respectively) had a previous surgical history and more than a quarter of those with a previous surgical history in both the study and control groups had a previous mastectomy. In the study group, slightly above three quarters of had no history of chronic disease (76.7%) and less than one quarter (23.3%) had history of chronic disease (as diabetes mellitus, hypertension). Most participants in the study and the control group (93.3% and 80.0% respectively) their treatment lasted for 24 hours each week at a time. As regards to smoking history, there was not smoking history in both groups. More than one-third of both study and control group (36.7% and 40.0% respectively) practice exercise as walking.

Table (3) shows that after two months of intervention, The total mean score for exhaustion, stress, sleep quality, and marital adjustment was significantly different (p = 0.00) between the study and control groups compared to before the intervention.

Table (4): demonstrates an extremely strong positive correlation between study group's overall scores for stress and sleep quality and their overall scores for fatigue (p=.000) compared with control group; this mean that when total score of fatigue increase (increased degree of fatigue), total score of stress will increase, total score of sleep quality will increase (higher scores indicate poor sleep quality)

Table (5): It shows that there was an extremely substantial positive association between the study group's total stress score and overall sleep quality score (high score indicate poor sleep quality) (p=.000) compared with control group; this mean that when total score of stress increase, total score of sleep quality will increase (higher scores indicate poor sleep quality).

Table (6): illustrate that, there was a highly statistically significant negative correlation between the study group's marital adjustment and their overall scores for fatigue, stress and poor sleep quality (p=.000) compared with control group. It suggests that the marital adjustment will be decreased when there is a negative emotional state (increase in stress), poor quality of sleep (higher scores indicate poor quality of sleep) and increase fatigue degree.

Table (7): displays, there was an extremely statistically significant positive correlation between the study group's age and their overall scores for stress and marital adjustment (p=.000) compared with control group.

Table (1): distribution of the studied subjects according to their demographic characteristics (N =60)

Social Characteristics	Study group (N=30)		Control group (N=30)		X2	P - value
	No	%	No	%		
Age Mean ± SD	42.63±9.07		44.53±5.03		t=1.003 ns	0.32
Sex Female	30	100.0%	30	100.0%	a	-
Social Status Married	30	100.0%	30	100.0%	a	-
Level of education						
Illiterate	8	26.7%	9	30.0%	2.71 ns	0.61
Reads and writes	2	6.7%	1	3.3%		
Primary school	5	16.7%	2	6.7%		
Secondary	14	46.7%	15	50.0%		
Bachelor degree	1	3.3%	3	10.0%		
Occupation						
Worker	3	10.0%	0	0.0%	3.15 ns	0.12
House wife	27	90.0%	30	100.0%		
Place of residence Rural	30	100.0%	30	100.0%	a	-
Income						
Not enough	12	40.0%	14	46.7%	0.27 ns	0.40
Enough	18	60.0%	16	53.3%		

NB: a. No statistics are computed because the data is a constant. NS = not significant (p>.05).

Table (2): distribution and Frequency of medical history of the studied subjects (N=60**)**

Medical history	Study group (N=30)		Control group (N=30)		X^2	P -value
	No	%	No	%		
Previous surgical history						
Yes	22	73.3%	27	90.0%	2.78 ns	0.09
No	8	26.7%	3	10.0%		
If yes which of the following						
		(n=22)		**(n=27)**		
Mastectomy	7	31.8%	8	29.6%	3.73 ns	0.59
Caesarean section	0	0.0%	2	7.4%		
Others	4	18.2%	6	22.2%		
2+3(mastectomy& caesarean section)	4	18.2%	6	22.2%		
2+4((mastectomy &others)	6	27.3%	3	11.1%		
1+2(intestinal obstruction & others)	1	4.5%	2	7.4%		
History of chronic diseases						
Yes	7	23.3%	3	10.0%	1.92 ns	0.15
No	23	76.7%	27	90.0%		
If yes which of the following	**n=7**		**n=3**			
Diabetes	2	28.6%	1	33.3%	2.06 ns	0.36
Hypertension	2	28.6%	2	66.7%		
1+3(diabetes &chest allergy)	3	42.9%	0	0.0%		
Duration of treatment each time						
24hrs weakly	28	93.3%	24	80.0%	2.31 ns	0.13
Each.21.days	2	6.7%	6	20.0%		
Do you have smoking history						
No	30	100.0%	30	100.0%	a	-
Do you practice exercise						
Yes	11	36.7%	12	40.0%	3.27 ns	0.06
No	19	63.3%	18	60.0%		
If yes what type of exercise did you practice						
		(n=11)		**(n=18)**		
Walking	8	72.7%	9	50.0%	1.45 ns	0.20
Walking and flexibility.	3	27.3%	9	50.0%		

Table (3): Comparison of the fatigue, stress and sleep quality and marital Adjustment scores on before intervention and two months after-intervention for the study and the control groups.

Variables	Before intervention	Two months after intervention	Paired *t test*	P -value
	X ± SD	X ± SD		
Fatigue score				
Study group	168.87±24.87	75.62 ± 16.62	20.71***	0.00
Control group	168.06 ±13.15	173.20 ± 12.92	1.68 ns	.192
Independent t test	0.17 ns	- 25.33***		
p-value	0.86	0.00		
Stress score				
Study group	20.33±6.32	10.30 ± 5.15	7.11***	.000
Control group	18.31 ± 10.22	19.00±7.82	0.33 ns	0.74
Independent t test	1.05 ns	-5.51***		
p-value	0.29	0.00		
Sleep quality score				
Study group	20.20 ±2.47	7.50±0.86	32.32***	.000
Control group	19.90 ± 4.57	17.70 ± 4.13	1.35 ns	0.26
Independent t test	0.31 ns	-13.25***		
p-value	0.75	0.00		
Marital adjustment score				
Study group	49.80±4.37	90.63 ± 11.69	19.91**	0.00
Control group	46.933±6.34	47.27 ± 6.68	.343 ns	.734
Independent t test	1.66 ns	17.639***		
p-value	0.10	0.00		

Table (4): a Pearson correlation between overall scores for fatigue, stress, and sleep quality among the study and control groups

Variables	fatigue total score			
	Study group		Control group	
	R	p. value	R	p. value
Total score of Sleep quality	0.92***	.000	0.19 ns	0.15
Total score of stress	0.55***	.000	0.06 ns	0.64

Table (5): a Pearson association between the overall stress score and the overall sleep quality score among the study and control groups.

Variables	Total score of Stress			
	Study group		Control group	
	R	p. value	R	p. value
The Sleep quality total score	0.62***	.000	0.05 ns	0.71

Table (6): Pearson correlation between marital adjustment and the overall scores for fatigue, stress, and sleep quality among studied subjects.

Variables	Marital adjustment			
	Study group		Control group	
	R	p. value	R	p. value
Total score of fatigue	-0.83***	0.00	0.18 ns	0.17
Total score of Sleep quality	-0.88***	0.00	0.21 ns	0.11
Total score of stress	-0.58***	0.00	0.09 ns	0.46

Table (7): Pearson correlation between age, the total stress score and the total marital adjustment score among the study and control groups.

Variables	Age			
	Study group		Control group	
	R	p. value	R	p. value
Total score of stress	0.86***	0.00	0.15 ns	0.23
Total score of marital adjustment	0.92***	0.00	0.02 ns	0.86

Discussion

Significant physical and psychological symptoms accompanied breast cancer during and after initial treatment. Psychological counseling People with both chronic pain and emotional distress get less of both types of symptoms when receiving acceptance and commitment therapy (ACT) **[39].** ACT significantly improves the levels of sadness, anxiety, quality of life, exhaustion, pain, and physical health in this population **[40].** Instead of questioning or correcting uncomfortable thoughts or feelings related to hard life conditions like cancer, ACT focuses on creating "a life worth living" by giving meaning and purpose through engagement in activities congruent with patients' basic beliefs **[41].**

According to a recent study, housewives made up the majority of the study group and that nearly half had a secondary education. In addition, each member of the study group and control group was a citizen in a rural area. This can be because, in contrary to urban areas, most women in rural areas have limited employment possibilities and marry young before completing their schooling. The current result also showed that there was no statistically significant difference between the study and control groups' demographics with a p value of 0.05.This was consistent with the findings of **[31]** found no differences between breast cancer

patients in the intervention group and those in the control group in terms of mean age, length of marriage, or number of children. The occupation and educational level were also evaluated using the chi-square test, and no significant differences were discovered between the two groups for these factor either. According to the recent study, that less than three-quarters of the study group and the majority of the control group had a previous surgical history and more than a quarter of those with a previous surgical history in both the study and control groups had mastectomy before. This may be because one treatment option for those with early-stage breast cancer is a mastectomy. Most breast cancer patients have the option of having radiation therapy after breast-sparing surgery.

Additionally, the current research found that, with $p>0.05$, there was no statistically significant difference in the medical histories of the two groups. This was in accordance with **[42]** which showed that breast cancer management had evolved into a multidisciplinary, evidence-based surgical specialty with a focus on conservative surgery. According to a number of significant trials, lumpectomy followed by radiation is the standard of care for many patients.

Furthermore, the current study found that just over 75% of the study group's participants had no history of chronic illness., whereas less than one-fourth had (as diabetes mellitus, hypertension). This was supported by the study results from **[43]** revealed that more than 10% of women had chronic diseases prior to being asked for screening. In addition, they found that among women without chronic conditions, breast cancer mortality fell by 28% (95% CI, 20% to 35%) after invitation to screening. Also **[44]** concluded that having numerous chronic illnesses makes it challenging to complete screening for mammography in accordance with recommendations, emphasizing the value of preventative screening for people who are managing chronic illnesses. Moreover, hypertension has been linked to a higher risk of acquiring a number of cancers as well as a higher mortality rate from cancer **[45].**

The current study additionally showed that the majority of the study and control groups received treatment for a total of 24 hours per week. Walking is the preferred form of exercise for more than one third of both the study and control groups (36.7% and 40.0%, respectively), and neither group had a history of smoking. This may be because walking is the simplest form of exercise and smoking is not a common tradition for women in our community, in rural areas, in particular. It was consistent with **[46];** found that women who smoked cigarettes regularly experienced a markedly greater incidence of breast cancer than those who did not smoke cigarettes regularly. Additionally, according to **[47],** Physical activity (PA) reduces the risk, recurrence, and mortality from breast cancer, according to strong evidence.

The current study showed that after two months of intervention, The total mean score for fatigue, stress, sleep quality, and marital adjustment was significantly different ($p = 0.00$) between the study and control groups compared to before the intervention. This could be as a result of the intervention's positive benefits, which help the patient accept difficult ideas, emotions, and sensations by helping them acknowledge unpleasant experiences and accept painful experiences and emotions without attempting to change or deny them. It was coincides with **[40]** who discovered that ACT markedly decreased the psychological distress of cancer patients. Additionally, **[48]** revealed that participants in the ACT

displayed moderate reductions in fatigue and sleep disturbance.

According to the current research, there was a highly statistically significant positive correlation between the study group's levels of fatigue, stress, and sleep difficulties and the control group's levels of each (p=.000). This indicates that as fatigue levels rise, so do stress levels and sleep difficulties. This could be as a result of research showing that immune system suppression is caused by stress, anxiety, and depression. According to **[49],** there is compelling evidence that inflammation influences the development of cancer, contributes to cancer-related fatigue, and can influence how the body reacts inflammatorily to stress and depression. This was in line with **[50]** finding that the level of weariness experienced by breast cancer patients undergoing radiotherapy was directly influenced by symptom evaluation, anxiety and depressive symptoms, disorientation, and perceived stress. **Also, [51]** found a strong correlation between fatigue and sleep quality using the Spearman correlation coefficient. Furthermore, **[52];** concluded that, unlike nocturnal sleep, fatigue was substantially linked with both subjective perceptions of inadequate sleep and objective measures of daytime sleepiness.

In the present study, It was found that there was a highly statistically significant positive link between stress levels and poor sleep when comparing the study group to the control group (p=.000). This shows that sleep issues also grow in correlation with stress levels. This might be the case because felt loneliness and stress have a poor effect on sleep quality. This result was consistent with **[53],** who found a positive correlation between the severity of sleep problems and felt stress (P 0.01).Also, a significant correlation between stress levels and sleep quality (p=0.001) was found by **[54]** Furthermore, multiple logistic regression analysis by **[55]** revealed that patients with sleep disorders were much more likely to experience psychological distress, severe pain, and concern than patients with no sleep issues. Additionally, **[53]**; found that female breast cancer patients frequently experience sleep disturbances. Previous studies have supported the associations between perceived stress, loneliness, and sleep quality as well as between resilience and symptoms among cancer patients**. According to [56],** perceived stress and loneliness may be indicators of sleep problems.

The current study found that, as compared to the control group, there was a highly statistically significant negative correlation between the study group's marital adjustment and fatigue, sleep quality (high scores imply poor sleep quality), and stress. It suggests that the marital adjustment will be decreased when there is a negative emotional state; poor sleep quality and increasing fatigue. This result was supported by **[57];** concluded that women with breast cancer have been found to suffer lower levels of sexual satisfaction following their diagnosis, which is related to fatigue. Also, **[19]** study found that physical issues like fatigue, a lack of power and energy, pain, medical management, and body changes can have an impact on sexual wellbeing. Additionally, the research indicates that women with breast cancer who have surgical treatment experience sexual dysfunction as a result of the stress and tiredness they feel in the days and weeks following surgery. Chemotherapy-related fatigue is believed to affect a woman's perception of her sexual attractiveness **[58].**

Additionally, the current finding revealed that the study group's marital adjustment demonstrated a highly statistically significant negative correlation with poor

sleep quality compared with control group , indicating that poor sleep quality (an increase in the overall sleep quality score) will have a negative effect on marital adjustment; finding was coincides with **[59];**they found that poor marital adjustment was substantially accompanied with depression, anxiety, and poor sleep.

In addition, the current study reveals that, in comparison to the control group, the study group's marital adjustment and stress had a highly statistically significant negative link; this finding suggests that the marital adjustment will be worsened when there is a negative emotional state (increase in stress). This finding was consistent with **[59];** confirmed the presence of a substantial link between marital adjustment and psychological distress of patients with cancer. They also, illustrated that patients with poor marital adjustment had worse sleep problems.

The present study's findings showed that, there was a greatly statistically significant positive correlation between the study group's age and their total scores for stress when compared to the control group. This implies that stress levels increase with age, suggesting that older patients experience greater stress than younger ones. However, **[60]** discovered that younger patients experienced greater levels of stress than older ones. **[61]** also found a correlation between age and reduced stress levels in breast cancer patients above the age of 65.

Furthermore, the recent study found that, there was a strong statistically significant positive association between the age of the study group and their total marital adjustment scores compared to the control group; this indicates that older patients have a higher level of marital adjustment than younger ones, and that women's marital adjustment will improve as they age. This finding was supported by **[62];** found that a woman's marriage age had a substantial impact on her marital adjustment and that older marriage ages were associated with greater marital adjustment.

Conclusion

The study came to the conclusion that patients with breast cancer benefit from nursing interventions based on acceptance commitment treatment in terms of stress levels, marital adjustment, sleep quality, and fatigue.

Recommendation

Acceptance commitment therapy should be the foundation of non-pharmacological cancer treatment for many malignancies.

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