

# The Effect of Acceptance and Commitment Therapy on Depression and Psychological Flexibility in Women With Breast Cancer

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**Background:** Breast cancer is the most common cancer among women. Many women with breast cancer suffer from depression and psychological distress.

**Objectives:** The present study by the purpose of examining the effect of acceptance and commitment therapy (ACT) on depression and psychological flexibility in women with breast cancer was performed.

**Patients and Methods:** The method of this research was semi-experimental, and statistic society of this research was women with breast cancer in Isfahan. In this research available sampling method was used and among patients admitted to Seyed-al-Shohada Hospital and who had registered to participate in the research, 20 people were selected randomly and they were randomly divided to two groups of control and experiment. Research tool consisted of beck depression inventory (BDI-II), acceptance and action questionnaire (AAQ-II), and demographic questionnaire. Experimental group received 8 sessions of 2 hour acceptance and commitment group therapy. Follow-up stage was performed at one month after the last treatment session.

**Results:** Results showed that ACT significantly decreased scores on the BDI-II and increased score on AAQ-II compared to the control group ( $P < 0.001$ ).

**Conclusions:** ACT may be considered to be an effective intervention approach for treatment of depression in women with breast cancer. It can be said that increasing in acceptance of thought and feeling associated with cancer and increasing in psychological flexibility that is the main goal of ACT has led to these changes.

**Keywords:** Acceptance and Commitment Therapy; Depression; Psychological flexibility; Breast cancer

## 1. Background

Many studies have done about psychosocial impact of breast cancer that is due to its high prevalence, its effect on women of all ages and the great significance of its part to women and their partners. Distress is common in cancer patients. Suffering of illness, treatment complications, disorder in performance and subjective image and sexual problems are factors that interfere with patient's mental health [1]. The prevalence of depression in these patients has reported 32.9% by Malekian et al. [2] Depressed cancer patients report a poorer quality of life and they are less adherent to medical interventions [3].

Individuals who score higher on measures of emotional acceptance have less psychological distress throughout the cancer experience [4]. Hayes and Wilson described illness acceptance as the surrender of the futile struggle to stop largely automatic, intrusive and aversive thoughts about illness [5]. Acceptance is associated with more use of active and problem focused methods and higher cop-

ing capabilities and better coping with illness and limitations of illness [6].

Despite research suggesting that acceptance is important for cancer patients, majority of interventions focus on relaxation/anxiety reduction techniques, problem solving, psycho education, and cognitive-behavioral strategies [7-10]. Recent types of CBT (cognitive-behavior therapy), such as acceptance and commitment therapy (ACT), have acceptance as a central focus [11]. ACT is the "third wave" of behavior therapy that encourages people to experience and manage negative emotions that considered barriers to participation in treatment. Willingness to experience unpleasant emotions and not avoiding them is a key process in ACT. In this treatment, the psychological relationship between person and his/her thoughts and feelings increases [12]. ACT aims to increase psychological flexibility, and thereby improving the individual function that is done by six process including ac-

ceptance, diffusion, self as context, contact with present moment, clarifying values and committed action [13].

In Paez et al. study, women diagnosed with breast cancer underwent eight sessions of either an ACT-based treatment or a cognitive-based protocol. Results showed a higher impact of the ACT approach, especially long-term, in terms of decreased anxiety and depression, increased quality of life, and behavioral activation [14]. Branstetter et al. in a randomized control trial dealing with end stage cancer exhibited similar encouraging results for the ACT condition [15]. In a study by Feros et al. ACT increase psychological flexibility and improve distress, mood, and quality of life [16]. In a study by Rost et al. among late-stage ovarian cancer patients, the ACT group showed significantly greater improvements in psychological distress and quality of life compared to the usual treatment group [4]. Most researches in Iran have investigated interventions such as mental imagery and relaxation and cognitive therapy [17-20]. Moreover, so far, no research has studied the effect of ACT on depression and psychological flexibility in these patients.

If a patient is unwilling to accept thoughts and feelings related to cancer, she might then avoid engaging in the necessary treatment or following her doctor's orders; thus, the illness may become worse. On the other hand, due to exposure to life-threatening disease people are unaware of their values. Therefore, aiding individuals to clarify valued life domains provides them with necessary motivation for surpassing and actively dealing with difficulties and this, in turn, can lead to better medical and psychological outcomes. In addition, according to evidences, as psychological flexibility increase, distress also improved.

## 2. Objectives

Given the prevalence of depression in patients with breast cancer, this study will examine whether with participation in the ACT, depression will reduce in this group of patients.

## 3. Patients and Methods

In this semi-experimental study among women with breast cancer in Isfahan, 20 patients were selected by using available sampling method. Entrance criteria included: Patients age should be between 20 and 60 years, patients were in the stage I, II, III of breast cancer, patients education level at least should be in elementary level (ability to reading and writing). They should not have history of metastasis or chronic diseases other than breast cancer. Exclusion criteria included absence from sessions and not completing the tests.

Researcher introduced project at a training session and people who interested in participating in the research were enrolled. Among all enrollees (48 patients), 20 patients were randomly selected and divided into 2 experimental and control groups. However, due to the loss in 2 patients in the intervention group, research was

performed based on data from 16 patients (8 patients in each group). This research was conducted based on acceptance and commitment therapy based on treatment protocol of Hayes and Strosahl [12]. Therapy sessions were 8 sessions of 2 hour per week. Treatment plan of sessions was briefly as follows:

Session 1: Familiarity with group members and making therapeutic relationship, discussion about privacy, survey of breast cancer in each person (illness duration and treatments), overall assessment and check distressing thoughts and feelings of the members, examining the unsuccessful client's use of control strategies to cope with these thought and feelings, introduce the creative hopelessness, assign homework, answer to the questionnaires.

Session 2: Feedback from the first session, review last homework, elaborating the creative hopelessness, introducing external and internal worlds in ACT, introduce the idea of the "unworkable system", introduce the idea that "control is the problem, not the solution", willingness as an alternative to control, assign homework.

Session 3: Feedback from the second session, elaborating the concept of willingness by using metaphors, introduces the importance of values and for the client to understand how values dignify willingness, assign homework.

Session 4: Feedback from the third session, introduction to values, clarify values, goals, actions, and barriers, introduction to diffusion, and assign homework.

Session 5: Feedback from the fourth session, elaborating the fusion and defusion by using metaphors and experiential exercises, introducing mindfulness, mindfulness practice, assign homework.

Session 6: Feedback from the fifth session, introducing type of fusion, introduce the distinction of the conceptualized self; continue to identify life domains, role of choice in committed actions; mindfulness practice, assign homework.

Session 7: Feedback from the sixth session, introduces fusion with life story, emphasize on contact with the present moment, commit to action, and assign homework.

Session 8: Feedback from the seventh session, introducing observing-self, summarizing six core process of ACT include acceptance, defusing, self as context, contact with present moment, values and committed action.

To follow moral considerations participants were assured that their information will remain confidential and the results will be evaluated in groups and whenever they want, they can withdraw from research. Therapy sessions were conducted by the researcher at the Center of Breast Cancer Research. Post-test was performed on all experimental and control groups after the end of 8 treatment sessions. In addition, for the survival effect of independent variables, follow up test was performed a month after the last treatment session.

To follow ethics, after analyzing the data and proving the effect of acceptance and commitment therapy on the variables, the control group received four sessions of ac-

ceptance and commitment therapy. In this study, the following questionnaires were used:

1) The Beck Depression Inventory-II (BDI-II): The questionnaire was designed to measure the severity of depression in 1963 by Beck and was revised in 1994. The BDI-II is a 21-item response inventory on which the responder is asked to rate the presence/severity of depressive symptoms on a 0 - 3 scale. The highest score in this questionnaire is 63. Each part of the questionnaire measures depressive symptoms [21]. Psychometric studies conducted on the second edition of this inventory show that it has good reliability and validity, and it is generally considered a suitable alternative for the first edition [22]. Beck et al. [21], using the test-retest method obtained the validity coefficient of the questionnaire 0.48 - 0.86. In addition, Dabson and Mohammadkhani found coefficient alpha 0.92 for outpatients and 0.93 for the students and have gained test-retest coefficient 0.93 within a week [23].

2) Acceptance and action questionnaire-II (AAQ-II): This questionnaire is a self-check tool that examine to what extent a person can show psychological flexibility, that mean the ability to connect with the present and the thoughts and feelings, no need to defend and depending on what the situation warrants; behavior consistency or change is at the service of the goals and values. The first version of the questionnaire was developed in 2004 by Hayes et al. [24]. Internal consistency of AAQ-I have had problems. AAQ-II was developed to solve this problem. AAQ-II is a 10-question instrument that has demonstrated good internal consistency ( $\alpha = 0.87$ ) and test-retest reliability ( $r = 0.80$ ). Cronbach's alpha coefficient for this tool was calculated in a preliminary study by Eizadi on 37 patients with obsessive compulsive disorder [25].

3) Checklist of surveying age, disease duration, education level. Analysis of raw data resulted from this study was performed by SPSS 16 software using descriptive statistics and analysis of variance methods with repeated measurements.

## 4. Results

The present study by the purpose of examining the effect of acceptance and commitment therapy (ACT) on depression and psychological flexibility in women with breast cancer was performed. Table 1 shows the descriptive statistics related to this analysis included mean and derivation of scores of depression and psychological flexibility in experiment and control groups at pretest, posttest, and follow-up. To analyze the data resulted from statistical method; analysis of variance with repeated measurements has been used. But first, for checking the assumption of normality of factors we have used the Kolmogorov-Smirnov test. Given that the Kolmogorov-Smirnov statistic was not significant ( $P < 0.05$ ), so the assumption of normality of factors was accepted. Also for checking the assumption of homogeneity of covariance Mauchly's sphericity test is used. The results are given in Table 2.

According to the results, because the statistical significance level of Mauchly's is higher than 0.05, then the variances are equal and Mauchly's sphericity test is used. After examining two assumptions of normality and homogeneity of variance, we analyze covariance of repeated measures that its results are shown in Table 3.

Observed F in  $P < 0.001$  shows significant difference between experiment and control groups in mean of pretest, posttest, and follow-up variables of depression and psychological flexibility. By LSD post hoc test it was indicated that between which of pre-test, post-test and follow-up test, in experiment group there is a significant difference that its results have been shown in Table 4.

According to the results of LSD post hoc test it was indicated that there is a significant difference about the variable of depression between pre-test and two tests, post-test and follow-up in the level of  $P < 0.01$ , and there is a significant difference between the post-test and follow-up in the level of  $P < 0.05$ . Also about variable of psychological flexibility there is a significant difference between pre-test and two test, post-test and follow-up and between the post-test and follow-up in the level of  $P < 0.01$ .

**Table 1.** Mean and Standard Deviation Scores of Depression and Psychological Flexibility in Experiment and Control Groups at Pre-test, Posttest, and Follow-up<sup>a</sup>

Variable	Experimental Group			Control Group		
	Pre-test	Post-test	Follow-up	Pre-test	Post-test	Follow-up
Depression	19.5 ± 7.25	8.62 ± 4.53	10.62 ± 4.5	18 ± 13.23	20.75 ± 12.48	20 ± 10.98
Psychological flexibility	30.5 ± 7.05	45.12 ± 4.51	42 ± 5.1	33.75 ± 10.67	29.88 ± 12.32	29.75 ± 10.56

<sup>a</sup> Values are presented as Mean ± SD.

**Table 2.** Test results of Mauchly's Test in the Repeated Measures of Variable of Depression and Psychological Flexibility in Both Experiment and Control Groups

Variable	Mauchly's Test	DF	P-Value
Depression	0.68	2	0.087
Psychological flexibility	0.87	2	0.41

**Table 3.** Results of ANOVA With Repeated Measures on the Pre-Test, Post-Test and Follow-up in Both the Control and the Experimental Groups and Experiment of Variables of Depression and Psychological Flexibility

Variable	Source of Change	Total Squares	df	Mean Square	F	P-Value	Eta Squared	Statistical Power
Depression	(Sphericity Assumed)	415.2922	2	207.64	44.86	0.001	0.76	1
Psychological flexibility	(Sphericity Assumed)	788.66	2	394.33	48.96	0.001	0.78	1

**Table 4.** Results of LSD Post Hoc Test of Pre-Test, Post-Test and Follow-up of Variables of Depression and Psychological Flexibility in the Experimental Group

Variable Test Type	Difference Mean $\pm$ SD	P-Value
<b>Depression</b>		
Pretest-posttest	10.87 $\pm$ 1.75	0.001
Pretest-follow up	8.87 $\pm$ 1.35	0.001
Posttest-follow up	-2 $\pm$ 0.65	0.018
<b>Psychological flexibility</b>		
Pretest	-14.62 $\pm$ 1.81	0.001
Pretest-follow up	-11.5 $\pm$ 1.47	0.001
Posttest-follow up	3.12 $\pm$ 0.78	0.005

## 5. Discussion

Results shows a significance difference between experiment group and control group in the mean of pre-test, post-test and follow-up of depression and psychological flexibility. According to the findings, we can conclude that acceptance and commitment therapy leads to decreasing in depression and increasing in psychological flexibility among women with breast cancer.

This finding is consistent with findings of Paez et al. and Branstetter et al. [14, 15]. Their results showed that ACT is an effective approach, especially in long-term, in terms of decreased anxiety and depression, increased quality of life, and behavioral activation. As was seen in the present study, engaging in valued domains of life leading to behavioral activation and thereby improve quality of life and depression in patients. In addition, the results of this finding are consistent with research of Feros et al. [16]. In their study, they found that this treatment leads to increased psychological flexibility and improved distress, mood and quality of life. As was seen in the present study, the main goal of ACT is to increase psychological flexibility, which ultimately in long-term leads to improvement of psychological consequences and mood.

In addition, the results of this finding are consistent with research of Rost et al. [4]. Their results showed that the ACT experiment group showed significantly more decreasing in psychological distress and greater improvements in mood and quality of life compared to the usual treatment group. Although acceptance and commitment therapy does not decline the symptoms (for example depression) directly, but it is believed that if patients not trying to reduce the thoughts and feelings, and abandon the struggle with thoughts and feelings, and instead

move on valued life directions, reducing in symptoms occurs spontaneously.

According to Hayes et al., more than half of the change in depressive symptoms can be explained by the lack of acceptance and willingness [24]. In the other hand, according to Batten, the reason of success of ACT treatment with a variety of clinical as well as various groups of people is that this approach focus on functional process that is behind impaired behaviors, rather than focusing on the form or frequency of symptoms that are characteristic of a disorder [26]. In fact, what acceptance and commitment therapy will target, is not a specific diagnostic category, but is behavior patterns that are preventing successful life. Therapist with client focuses on overall improvement of her life, rather than focusing on symptom reduction. The purpose of this treatment was increasing the source of behavior in the presence of frightening internal events (i.e. distressing thoughts and feelings related to cancer); something called psychological flexibility.

A very important process of ACT is dealing with a person's clarifying values. Values are defined as intrinsic reinforces, which provide a chosen direction for one's behaviors and actions-despite faced obstacles [27, 28]. Due to facing life-threatening illness, cancer patients may be unaware of their values. Therefore, aiding individuals to clarify their values and valued life domains provides them with necessary motivation for surpassing and actively dealing with difficulties, including the diagnosis and treatment of cancer. This, in turn, can lead to better medical and psychological outcomes. By clarifying the values and goals, patients will understand that for years

instead of trying issues that they could change them (it means performing consistent with values) they have tried issues that are unchangeable (it means thoughts, emotions, memories related to cancer and etc.). Accepting the thoughts and feelings that people have about their illness, help them to engage in behavior that are consisted with their values, rather than struggle with these thoughts and feelings. So even though their activities were limited the following illness, but they were engaged in behaviors that were considered in terms of their value, such as communicating with others, improve relationships with family, friends, religion and spirituality. Active involvement in valued domains of life leads to improvement in medical and psychological consequences.

Evidence shows that increasing in psychological flexibility also improves patient's psychological distress. It can be said that acceptance and mindfulness processes on the one hand and behavioral change process on the other hand, improves the mood of patients with breast cancer.

This study is the first study in Iran that investigates the effect of acceptance and commitment therapy on improving depression and psychological flexibility among women with breast cancer. According to the findings of this research, this treatment can be chosen as a method of psychotherapy and complementary medical treatment, to be used to reduce depression in patients with cancer. We hope that the results of this research courage the related experts to give more importance to psychological aspect of this disease that its direct result can be better and faster treatment of disease and improvement of patients' quality of life. A clinical interview is necessary for diagnosing depression type, for better effectiveness of acceptance commitment therapy. In order to confirm the results of this study conducting this research in other types of cancer as well as male gender suggested to the researchers. As one of the limitations of this study, we can refer to small interval between post-test and follow-up steps. This study has only one intervention group and effect of acceptance and commitment therapy has not compared with other interventions.

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## Authors' Contributions

All authors had equal role in design, work, statistical analysis and manuscript writing.

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