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Research Article

EFFECTIVENESS OF ACCEPTANCE AND COMMITMENT THERAPY (ACT) TO REDUCE THE SYMPTOMS OF DEPRESSION IN WOMEN WITH BREAST CANCER

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ABSTRACT
The aim behind this study was to determine the effectiveness of acceptance and commitment therapy (ACT) to reduce the symptoms of depression in women with breast cancer. This study was a quasi-experimental study with a pre-test - post-test and control group and research method was accessible and done based on the results of a clinical interview and second version of the Beck Depression Inventory (BDI-II). Among the women with breast cancer that referred (in 2013 year) to a specialist breast clinic, Jihad of Tehran University, 30 women breast cancer patients with depressive symptoms were selected and randomly divided to experimental groups (n = 15) and controls (n = 15) groups. Acceptance and commitment therapy in 8 sessions of 45-60 minutes in the experimental group and the control group did not receive any intervention. Pre-test and post-test scores of both groups with one-way analysis of covariance (ANCOVA) were analysed. The results of this study showed that the depression is significance difference between experimental and control groups at 95% confidence level and depression scores of the experimental group were significantly decreased compare to control group. Our result showed that acceptance and commitment therapy (ACT) is effective to reduce the symptoms of depression in women breast cancer patients.

Keywords:*Breast Cancer, Symptoms of Depression, Acceptance and Commitment Therapy (ACT)*

INTRODUCTION
Cancer is the second cause of death in developed countries and is responsible for 1.5 percent of deaths (Fobayer and Croba, 1982, as cited in Hayes and Lillis, 2012). The breast cancer is the most common and most lethal cancer among women and has emotional and psychological effects. It is estimated that incidence of psychiatric disorders in cancer patients is 30 to 40 percent. Cancers are wide spectrum of diseases that are differ in etiology, prognosis and treatment plan. Most people who suffer from breast cancer, experience a period of psychological pressure. In some cases, these psychological pressures will be lost of its own accord and does not lead to lasting psychological problems and can be considered as a normal adjustment reaction, but some patients can experience severe psychological problems that reduce their quality of life and daily functioning. These psychological problems that are clinically serious often are present as a part of an adjustment disorder, major depressive disorder or an anxiety disorder. In addition, cancer treatments is associated with several stress, some of them reduce quality of life and lead to anxiety or depression. For example, patients often have psychological side effects of treatment, such as anger, worry, anxiety or severe physical that they are graded this as problematic than hair loss and nausea. Even some of patients leave undergoing chemotherapy for psychological problems (White, 2010, as cited in Hayes and Lillis, 2012). Crisis cancer causes are lack of balance and inconsistency thought, body and spirit. But in most cases the patient's sense is disappointment. In 2002, about one million and one hundred and fifty thousand new cases of breast cancer in the world and predicted one and a half million new cases reported in 2010. According to the National Cancer Registration in over four decades, the increased incidence of breast cancer among the Iranian women let to those malignancies is most common cancer, and Iranian women will be affected a decade earlier than their counterparts in developed countries. Breast cancer incidence in women 50 years and older is increasing rapidly. From January 1998 to December

2005, the incidence of breast cancer in Iranian women was 0.022, which age range was15-85 years and highest in the age range 40-49 years. The findings show that chronic depression may be associated with cancer. Psycho-physiological mechanisms, including the lack of regulation of hypothalamic axis - the pituitary - adrenal cortisol and melatonin, especially daily variations are linked to cancer, depression and relapse. Depression can affect components of immune function, which may be the observer of cancer. According to the evidence exists a directional relationship between depression and cancer and it creates opportunities for therapeutic intervention (Spigel and Davis, 2003, as cited in Bach and Hayes, 2002). Depression is a common psychologically disorder, that resemble the flu. People who suffer from depression may feel sad and have melancholic thoughts. It is likely that they suffering the lack of energy, loss of self-esteem, difficulty concentrating, lack of interest in pleasurable activities, feelings of distrust others and tend to lead to suicidal thoughts, crying. Considering that depending on the severity of depression influences on all aspects of economic, social, and emotional individual, family and community, therefore, prevention of depression and inability to perform daily activities can enhance individual and community health (WHO, 1992, as cited in Bach and Hayes, 2002). To date, the psychological consequences of cancer and its treatment has been the subject of many research activities. Generation of behavioural approaches in conflict with the basic approach of psychological analysis were introduced in the 1950s and 1960s based on classical conditioning perspective and second generation therapies as the treatment of cognitive-behavioural. By the 1990s, there was a greater emphasis on cognitive aspects. Therapies emphasized the role of beliefs, knowledge, schemas. Data processing system has been developed for psychological disorders. Today, we are faced with the third generation of treatments that can be called as a general model-based acceptance. In this treatment is based on the association between identify, thoughts and feelings (Hayes *et al.*, 2003). ACT is born of behaviour therapy. In fact, behavior therapy can be divided into three periods including traditional behavior therapy, cognitive behavioral therapy, and the third wave or contextual approaches to behavior. As Haze *et al.*, (2004) describe, ACT is a therapeutic approach that uses acceptance, mindfulness, commitment, and behavior and switch processes to create psychological flexibility. Unlike other views of Western psychotherapy, this method is not a syndrome-based approach. Rather, it is believed that healthy mind and cognition, thinking and language processes direct human toward avoiding experience (which are based on the third wave treatments, the existing conditions must be accepted). This empirical avoidance in turn leads to problems and sufferings for human (Haze *et al.*, 1999). Acceptance and commitment therapy includes two parts: awareness and practice attention and experience at the present moment. Individuals are trained so as to live in the present moment and move and act toward their values in life by accepting their feelings and emotions and avoiding experimental avoidance. Based on ACT point of view, the basic source of psychopathology and human's dissatisfaction is the method of using rational thinking which affects how we live. This kind of mental flexibility appears when people us their language tool (e.g. when this tool is not useful or used in an ineffective or problematic way) Looma *et al.*, (2007). This method highlights the ways the client tries to fight his inner life using language traps ACT intervention is aimed to change processes involved in the psychopathology of these disorders. In fact, this type of therapy is capable of changing tough thoughts and feelings in the individual and altering the way one deals with problems by means of particular techniques (Halford *et al.*, 1999). In this method, it can be said that fighting emotions worsens them (Sawdera, 2007, as cited in Hayes and Lillis, 2012). Psychological inflexibility is the reasoning on the appearance of experimental avoidance, cognitive problems, being interested in conceptualization on oneself, disconnection from the present moment, and consequently failure in needs, behavior stages and the ownership of the main values. ACT intervention is aimed to change processes involved in the psychopathology of these disorders. In fact, this type of therapy is capable of changing tough thoughts and feelings in the individual and altering the way one deals with problems by means of particular techniques (Halford *et al.*, 1999). Therefore present study was carried out to find out whether acceptance and commitment therapy is effective to reduce the symptoms of depression among women with breast cancer?

MATERIALS AND METHODS

In this study we used a semi-experimental intervention plan and the results were analyzed using statistical methods. Among the women with breast cancer, that referred (in 2013 year) to a specialist breast clinic, in Jihad of Tehran University, 30 women patients with depressive symptoms were selected and randomly divided into experimental groups (n = 15) and control (n = 15) groups. In this study, sampling with random assignment and control groups were used. Data were collected using questionnaires and performed in therapy center. The second version of the Beck Depression Inventory was administered to visitors who have depressive symptoms. Then 30 patients who obtained required scores in the test were selected and randomly divided into experimental and control groups. After pre-test, experimental group were given acceptance and commitment therapy for 8 sessions, each session lasting 45-60 minutes. After the sessions, the post-test was carried out. The control group did not receive any intervention.

Instrument

The Beck Depression Inventory Second Edition (BDI-II): is a 21-item self-report instrument intended to assess the existence and severity of symptoms of depression as listed in the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV; 1994).Each of the 21 items corresponding to a symptom of depression is summed to give a single score for the BDI-II. There is a four-point scale for each item ranging from 0 to 3. On two items (16 and 18) there are seven options to indicate either an increase or decrease of appetite and sleep. Cut score guidelines for the BDI-II are given with the recommendation that thresholds be adjusted based on the characteristics of the sample, and the purpose for use of the BDI-II. Total score of 0-13 is considered minimal range, 14-19 is mild, 20-28 is moderate, and 29-63 is severe.With regard to construct validity, the convergent validity of the BDI-II was assessed by administration of the BDI-1A and the BDI-II to two sub-samples of outpatients (N=191). The order of presentation was counterbalanced and at least one other measure was administered between these two versions of the BDI, yielding a correlation of .93 ($p<.001$) and means of 18.92 (SD = 11.32) and 21.888 (SD = 12.69) the mean BDI-II score being 2.96 points higher than the BDI-1A. A calibration study of the two scales was also conducted, and these results are available in the BDI-II manual.

Data Analysis

Data analysis was conducted with descriptive & inference statistics. In descriptive statistics analysis, means& standard deviation & in inference statistics part of the analysis ANCOVA test was used to analyze research hypotheses. All analysis was done by SPSS 16 software.

Treatment Method

Training process has eight steps including:

- Session I: Introduction therapy, Discussion about confidentiality, Informed consent for the completion of the treatment process, Overall assessment, Understanding the concept of creative disappointment
- Session II: Performance Evaluation, Review prior meeting reflection on one's life,Check homework and continue to talk about the creative disappointment
- Session III and IV: Performance Evaluation, Review prior meeting reflection on one's life, Understanding the concept of willingness-admission, Behavioral commitment
- Session V and VI: Performance Evaluation, Review prior meeting reflection on one's life, Check homework and behavioral commitment, Understanding the concept of self-context as non-cognitive fusion, Theoretical knowledge of cognitive fusion, Training related to behavioral commitments and homework
- Session VII and VIII: Performance Evaluation, Review prior meeting reflection on one's life, Check homework, Understanding the concept of values, Increased focus on behavioral commitments.

RESULTS

Descriptive indices related to depression scores for participants in control and experimental group are listed in Table 1. As seen in the table, mean depression score decreased for both groups in the post-test,

but mean decrease score in experimental group was higher than control group (Table 1). In pre-test, mean score in both groups is similar, but in post-test it showed a great decrease for experimental group.

Table 1: Descriptive analysis of depression score in pre-test and post-test in control and experimental groups

Group	Stage	N	Min	Max	Mean	SD	Skewness	Skewness error	Kurtosis	Kurtosis error
Control	Pre-test	15	22	30	25.93	1.94	0.108	0.580	0.706	1.121
	Post-test	15	18	27	22.53	2.64	-0.191	0.580	-0.682	1.121
Experimental	Pre-test	15	20	30	24.73	3.17	0.018	0.580	-0.953	1.121
	Post-test	15	10	19	15.07	2.65	-0.477	0.580	-0.562	1.121

After adjusting pre-test scores, significant effect was between subjects ($p = 0.000$, $F = 84.991$). Adjusted mean scores of depression suggest that, experimental group that used acceptance and commitment therapy compared with the control group have less depression significantly.

Table 2: ANCOVA analysis of depression in in pre-test and post-test in control and experimental groups

	SS	df	MS	F	Sig	Etasquare
Pre-test	97.948	1	97.948	26.789	0.000	0.498
Groups	310.747	1	310.747	84.991	0.000	0.759
Error	98.719	27	3.656			
Total	11218	30				

DISCUSSION

Eta squared 0.759 was obtained, which means about 75.9% of the variance in depression was explained by the intervention. This research hypothesis is confirmed. Our findings are consistent with a large number of previous studies. ACT has been among the most actively researched of the new CBT approaches. A recent meta-analysis demonstrated growing evidence for the efficacy of ACT (Hayes *et al*, 2006). Research to date has supported the effectiveness of ACT for the treatment of workplace stress (Bond & Bunce, 2003), psychosis (Bach & Hayes, 2002; Gaudiano & Herbert, 2006), depression (Zettle & Hayes, 1986; Zettle & Rains, 1989), test anxiety (Zettle, 2003), trichotillomania (Woods *et al.,* 2006), epilepsy (Lundgren, 2004), obsessive–compulsive disorder (Twohig *et al.,* 2006), and social anxiety disorder. Additionally, ACT has demonstrated success with behavioral medicine applications including chronic pain (McCracken & Eccleston, 2006), cigarette smoking cessation (Gifford *et al.*, 2004), diabetes (Gregg, 2004, as cited in Hayes and Lillis, 2012), and substance abuse (Hayes, *et al.,* 2004). Although offering preliminary support for the effectiveness of ACT, many of these studies lack an active comparison group. But one should not compare ACT to gold-standard CT programs conducted by investigators with an allegiance to ACT. Several studies offer preliminary support for this proposed mechanism. Moreover, there is some evidence that ACT appears to operate by means of different mechanisms than CT. Bond and Bunce (2000) demonstrated that the positive effects of an ACT stress reduction intervention were mediated by the acceptance of undesirable thoughts and feelings. In two studies of depression, changes in cognitive diffusion mediated treatment effects for ACT, but not for CT (Zettle & Hayes, 1986; Zettle & Rains, 1989). Similarly, evidence for the mediating role of cognitive defusion was found in a pair of studies of ACT for psychosis (Bach & Hayes, 2002; Gaudiano & Herbert, 2006). In both cases, findings pointed to a mediating role of believability in ACT's superiority, relative to TAU, in decreasing rehospitalization. Trials of ACT to test anxiety (Zettle, 2003), trichotillomania (Woods *et al.,* 2006), worksite stress (Bond & Bunce, 2000), chronic pain (McCracken *et al.,* 2005), and nicotine addiction (Gifford *et al.,* 2004) have all concluded that decreases in experiential avoidance partially mediated the observed treatment effects of ACT. In addition to clinical trials, a growing number

of analogue laboratory studies lend support to the mediational role of experiential acceptance in coping with pain (e.g., Hayes *et al.*, 1999), panic attacks (e.g., Levitt *et al.*, 2004), and anxiety related distress (e.g., Kashdan *et al.*, 2006). Finally, another core ACT process is values clarification, which has received very little research attention to date. In explaining these results, it can be concluded that although there may be interference from other methods of psychotherapy and drug therapy or even may have positive effect on reducing the signs and symptoms and physical discomfort, yet, acceptance and commitment therapy has been able to show exactly this effect. Additional research using designs that permit a formal evaluation of causal mediational mechanisms is especially needed.

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