Effectiveness of Group Training Based on Acceptance and Commitment Therapy on Anxiety and Depression of Women with Breast Cancer

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Abstract

Background: Breast cancer is the most common cancer in women that as a sudden event has profound effects on all aspects of patients' lives. Psychosocial interventions may play important roles in reducing anxiety and depression among breast-cancer survivors. Therefore, group training based on acceptance and commitment therapy may help women to cope better with their condition, and decrease their anxiety and depression.

Methods: In a quasi-experimental study, 30 patients with breast cancer were selected by convenience sampling method and randomly assigned to 2 experimental and control groups. The experimental group attended acceptance and commitment training classes for 8 weeks continuously (each class lasting 90 minutes). Participants in both the experimental and control groups completed Beck Anxiety Inventory (BAI) and Beck Depression Inventory (BHI-II) as a pretest and posttest. Analysis of Covariance was used as the statistical method.

Results: In acceptance and commitment group training, anxiety and depression significantly decreased (p<0/05). These changes were not observed in the control group.

Conclusion: The results showed that group training based on acceptance and commitment therapy is an effective method in reducing anxiety and depression. Hence psychological interventions can be used to reduce psychological difficulties of women with breast cancer.

Keywords: Breast Cancer; Treatment based on acceptance and commitment; anxiety; depression

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Introduction

Breast cancer (BC) is the most prevalent cancer in Iranian women and the fifth most common cause of cancer-related death in Iran [1]. Cancer treatment processes are complex and frequently associated with severe side effects and complications that influence the physical, psychological, and social dimensions of life for cancer patients and their families [2]. Anxiety and depression are two common psychiatric disorders in breast cancer [3-6].

During the last two decades a number of psychotherapies have been developed which are summarized as the third wave of cognitive behavioral therapies. Among these are dialectical behavior therapy (DBT), acceptance and commitment therapy (ACT), schema therapy, cognitive behavioral analysis system of psychotherapy (CBASP), mindfulness-based cognitive therapy (MBCT), and metacognitive therapy (MCT) [7]. The primary differences between the interventions were that the ACT protocol focused on values and goals clarification with an emphasis on willingness to experience all emotions and situations (primarily acceptance-based strategies), whereas the CBT protocol was focused on psycho education and techniques for altering thoughts and behaviors (primarily change-based strategies) [8].

ACT contains six processes -acceptance, diffusion, the now, self, values, and committed action. The first four are acceptance and mindfulness processes; the last four are commitment and behavior change processes. Thus, an easy definition of ACT is a behavioral and cognitive intervention that uses acceptance and mindfulness processes, commitment, and behavior change processes, to produce psychological flexibility [9]. In order to clarify the processes of ACT, we briefly summarize the functions of each process: Acceptance and diffusion both undermine destructive language processes; self as context and contact with the present moment both involve increasing effective contact with the here and now; values and committed action both involve building out the positive aspects of language into patterns of behavior change [10].

Generally, Acceptance facilitates the ACT core processes of commitment. The process of commitment includes using experiential exercises and metaphors to help clients articulate in words the purposely chosen and deeply meaningful directions of their lives (i.e., Values) and committing to repeated behavior changes guided by those values (i.e., Committed Action). Acceptance of one's thoughts, emotions, and sensations is designed to facilitate the process of taking value-guided committed actions [11]. This means that patients with acceptance mechanisms, Provide conditions to set goals and commitment to them. Indeed, ACT therapists encourage clients to recognize and reduce unhelpful struggle with psychological content and develop a more accepting stance to be able to move in a valued direction [12]. For example, as applied to anxiety disorders, ACT seeks to undermine excessive struggle with anxiety and experiential avoidance and attempts to down regulate and control unwanted private events (thoughts, images, or bodily sensations). The goal is to foster more flexible and mindful ways of relating to anxiety so individuals can pursue life goals important to them. Hence, reduction of anxiety can help patients to pursue goals more flexibly [13]. Previous reviews of the literature have indicated that acceptance and commitment therapy have significant effects on chronic pain, anxiety disorders, obsessional compulsive disorder, and also mental health promotion [14-17]. Also, studies showed that ACT may be effective for a variety of disorders, including several anxiety disorders, depression, pain, trichotillomania, psychotic disorder, drug abuse and the management of epilepsy and diabetes [18]. We designed a clinical trial to examine the effects of group training based on acceptance and commitment therapy on anxiety and depression in women with breast cancer.

Materials and Methods

The present study was a quasi-experimental design with pre-test, post-test and a control group. Subjects were randomly assigned to 2 experimental and control groups. The experimental group attended group training of acceptance and commitment treatment. Acceptance and commitment therapy protocol was based on the book of Steven C. Hayes [19] which was held in 8 sessions of 90 minutes (in 4 consecutive weeks). Acceptance and commitment intervention included introduction, assessment of problems, abandonment of control, observation, mindfulness, values, commitment and conclusion (Table 1).

Statistical population

Thirty subjects with diagnosed breast cancer in Shohada hospital of Tajrish, Tehran who were covered by Cancer Research Center (CRC) were selected by convenience sampling method. Inclusion criteria for the current study population were: 1) Age between 30 and 65 years; 2) Having literacy; 3) Diagnosed breast cancer in stages I, II or III in patients who completed standard therapies. Exclusion criteria were: 1) Mental disorders and other cancers 2) Simultaneous participation in other psychological courses. Demographic data of subjects are presented in tables 2 and 3.

Research tool

Beck Anxiety Inventory (BAI)

Beck Anxiety Inventory (BAI) which was built in 1988 by Beck and colleagues is a 21-item scale that showed high internal consistency (∞=0.92) and test-retest reliability over one week, r (81) = 0.75 [20]. Scoring is easily accomplished by summing scores for items. The total score ranges from 0–63. The following guidelines are recommended for the interpretation of scores: 0–9, normal; 10–18, mild to moderate anxiety; 19–29, moderate to severe anxiety; and 30–63, severe anxiety. Among sex and age classes of the Iranian population, the results showed that the test has good validity (r=0.72, p<001), reliability (r=0.83, p<0.001) and internal consistency (Alpha=0.92) [21].

Table 1. Summary of sessions performed in this study

Sessions	Summary of sessions
Sessions 1	Introduction and general description of therapeutic approach. Explaining the rules and expectations.
Sessions 2	Assessing patient problems by ACT approach (Extraction of avoiding experience, Integrates with thoughts and Individual values).
Sessions 3	Elimination of inefficient control of negative events using metaphors. Willingness toward negative emotions and experiences.
Sessions 4	Separating assessments from personal experiences (bad cup metaphor) and observing thoughts without judgment.
Sessions 5	Contact now and considered self as a context (chessboard metaphor). Teaching techniques of mindfulness.
Sessions 6	Extracting value of patients' life and evaluation on the basis of their importance.
Sessions 7	Providing practical solutions to overcome barriers and planning for commitment to pursue the great values of life.
Sessions 8	Summary and conclusions. A brief description of concepts discussed in each session.

Table 2. Age characteristics of women surviving breast cancer

	Age	
	Control group	**Experimental group**
N	15	15
Mean	49.66	45.4
Minimum	44	29
Maximum	59	59

Beck Depression Inventory (BHI-II)

Beck Depression Scale was built in 1967 by Beck which is a self-report Questionnaire. Depression Inventory-II (BDI-II) is a 21-item self-report version of a questionnaire for depression in adults and adolescents above 13 years. Scores are based on four options (3-0) for absence of specific indication to the highest degree of symptoms. The minimum score is zero and its maximum is 63. Scores on each of items can be obtained directly by adding all scores. The following scores can be used to indicate the overall level of depression: 0 to 13: no or minimal depression; 14 to 19: mild depression; 20 to 28: moderate depression; 29 to 63: severe depression. Validity of the test was 0.91, correlation coefficients ranges of materials with the questionnaire were reported between 0.454 and 0.681 [22].

Results

This study was conducted on 30 patients with breast cancer in different stages I, II, III who had completed their standard therapy before the psychological intervention; they were divided into 2 experimental and control groups randomly. The collected data were analyzed using the SPSS version 20 statistical software packages. Descriptive statistics including mean and standard deviation and analytical statistical tests including levene's test for homogeneity of variances and analysis of covariance (ANCOVA) were used. P values less than 0.05 were considered significant. To evaluate the effectiveness of ACT on anxiety and depression of women with breast cancer, after calculating the scores of pre-test and post-test in both experimental and control groups, levene's test for homogeneity of variances and analysis of covariance (ANCOVA) were used. According to descriptive results, pre-test scores of experimental group were higher than the post-test scores in anxiety and depression scales. Mean scores of anxiety and depression before the experiment were 37.1 and 45.4, after the experiment they decreased to 28.8 and 36 respectively. These differences were not observed in the control group (Table 4). At first, levene's test showed that variances are equal ($p>0.05$) (Table 5) and analysis of covariance (ANCOVA) indicated that anxiety and depression symptoms decreased significantly ($p<0.05$) in experimental group after the intervention (Table 6). The findings of present study have shown that breast cancer patients after participating in ACT intervention had experienced lower levels of anxiety

Table 3. Marital status of women surviving breast cancer

	Marital Status		Frequency	Percent
	Control group	Experimental group		
Single	4	3	7	%23
Married	11	12	23	%77
Sum	15	15	30	%100

Table 4. Mean differences of anxiety and depression before and after intervention

Variables		Before Intervention	After Intervention
Anxiety	**Experimental group (n=15)**	37.1±10.2	28.8±6.5
	Control group (n=15)	34.4±9.06	36.9±9.2
Depression	**Experimental group (n=15)**	45.4±13.8	36±9.9
	Control group (n=15)	37.1±10.5	41.6±10.5

Table 5. Levene's test for homogeneity of variances

Variable	F	df1	df2	Sig.
Anxiety	1.73	1	28	.19
Depression	1.89	1	28	.18

Table 6. Analysis of covariance to compare two groups pre-test and post-test

Indicators	Source	df	Mean Square	F	P Value	eta
Anxiety	**BAI Pre**	1	1185.25	53.21	.000	.663
	BAI Group	1	720.09	32.32	.000	.545
	Error	27	22.27			
Depression	**BDI Pre**	1	2243.95	107.11	.000	.799
	BDI Group	1	908.18	43.35	.000	.616
	Error	27	20.95			

and depression than breast cancer patients in control group.

Discussion

This study investigated effectiveness of group training based on ACT on anxiety and depression of women with breast cancer. Results showed that ACT intervention has significant efficacy on anxiety and depression of patients. Generally, there are few studies that have examined applications of ACT techniques in cancer patients. Among them one can refer to Hulbert-Williams, Storey and Wilson (2014) where they examined ACT as a psychological intervention for patients with cancer and mentioned effectiveness of this intervention for cancer adjustment [23]. Another study showed that change in psychological flexibility in ACT intervention has led to changes in quality of life, distress, and mood of cancer patients at post-test and 3-month follow-up [24]. Also the results have shown that emotional acceptance in patients with breast cancer is associated with less pain [25]. Also research showed that interventions that reduce experiential avoidance (EA) and help people to identify and commit to the pursuit of valued directions are beneficial for ameliorating diverse problems in life [26]. As mentioned earlier, mindfulness is one of the key concepts in the ACT model and researches have shown that Mindfulness-Based Cancer Stress Management program is effective in reducing psychological distress and improving quality of life, including spiritual well-being [27]. Mindfulness has various positive psychological effects, including increased subjective well-being, reduced psychological symptoms and emotional reactivity,

and improved behavioral regulation [28]. Generally, the role of positive psychology interventions including mindfulness-based approaches, expression of positive emotions, spiritual interventions, hope therapy, and meaning-making interventions has been proved to create positive changes such as enhanced quality of life, well-being, hope, benefit finding, or optimism in breast cancer patients [29].

Cancer patients need to develop strategies in order to maintain mental health during treatment of cancer. Psychological training such as metaphors and exercises which are used in ACT protocol can play an important role in achieving this goal. For example, metaphors were used in the treatment protocol attempt to reconcile patients with negative unwanted emotions and thoughts that they tried to avoid. Also applying exercises based on mindfulness, facilitated process of acceptance. As previously mentioned, acceptance can empower patients to move toward realistic goals. In clinical application of this approach, it was expressed that ACT is not based on psychology of abnormality, and it is not linked to syndrome classification. Thus, the same analysis applied to a client as it does equally to the therapist, and therapy is viewed as a relationship between equals. The client is never viewed as broken, or damaged, or without hope. Instead, the perspective is always one of empowerment: that a rich, meaningful, value-based human life is available to all. Pain is taken to be part of life, not a foreign entity to be gotten rid of, and progress is not defined by an absolute level of achievement; rather by the incremental choice to embrace the present and to step forward toward a life worth living [30].

Group intervention based on acceptance and commitment therapy provides conditions to accept negative experiences and emotions by techniques of mindfulness and other methods of ACT. The aim of this intervention is teaching patients to get rid of useless struggle and efforts to control and eliminate negative emotions and experiences in order to achieve psychological flexibility that is the core target of the ACT model. Also we tried to help patients to recognize their important values and be encouraged to act on the basis of values. In conclusion, we can say ACT is an effective model in order to promote empowerment of women in coping with breast cancer crisis and it can reduce psychological effects such as anxiety and depression.

Limitations

This study has a number of limitations that must be acknowledged: First, Non-random selection; second, Variables such as marital status, occupation, and socioeconomic status of patients have not been controlled; third, Lack of follow-up periods.

Conclusion

The results showed that group training based on acceptance and commitment therapy is an effective method in reducing anxiety and depression. Hence psychological interventions can be used to reduce psychological difficulties of women with breast cancer.

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Conflicts of Interest

The authors declare that there are no conflicts of interest.

Authors' Contribution

Sahar Mohabbat-Bahar designed and wrote this article. Mohammad Moradi-Joo and Fateme Maleki-Rizi performed and analyzed the data. Mohammad Esmaeil Akbari guided this article. All authors read and approved the final manuscript.

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