

A comparative evaluation of the effect of group-based cognitive-behavioural therapy and acceptance and commitment therapy on emotion regulation in women with breast cancer

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ABSTRACT

The aim of present study was to compare the effects of group-based cognitive-behavioural therapy and acceptance and commitment therapy on emotion regulation in women with breast cancer. For this purpose, this quasi-experimental design with pre-test-post-test and follow-up and with a control group was conducted. Using a convenience sampling method, 30 patients were randomly divided into two groups of intervention and control. Each intervention group received 10 sessions of acceptance and commitment therapy and cognitive-behavioural therapy and a follow-up test was held after 2 months. The control group did not receive any treatment. The groups were tested for emotion dysregulation before and after the intervention. The results of multivariate analysis of covariance showed that both cognitive-behavioural therapy and acceptance and commitment therapy significantly reduced emotion dysregulation in women with breast cancer. In the experimental group, no significant difference was observed in levels of emotion dysregulation in post-test and follow-up stages. It seems that this therapy can be a good way to accelerate treatment and adaptation to this disease by targeting the mechanisms involved in emotion dysregulation in women with breast cancer.

Keywords: Acceptance and Commitment Therapy, Cognitive-Behavioural Therapy, Emotion Dysregulation, Breast Cancer.

Introduction

Breast cancer is the most common cancer in women due to the uncontrolled and malignant growth of epithelial cell masses covering the ducts or lobules of breast tissue in women. Over the past two decades, despite the significant advances in biomedical research and related disciplines including health psychology and social medicine, cancer is still recognized as one of the leading causes of pain, suffering, and death worldwide ^[1]. In Iran, breast

cancer has the first rank among other types of cancer and among all types of cancer involving both women and men, 16% is related to breast cancer ^[2]. No significant difference has been observed in the emergence, prevalence and mortality rate caused by breast cancer in Iran as compared to the World Data Bank ^[3]. Daily increase in growth of breast cancer in recent years and its harmful effects on all physical, affective, psychic, social and economic dimensions has attracted the attention of both people and experts to this kind of cancer more than ever. They have introduced this kind of cancer as the main health problem of the century. Patients having this disorder feel distressed due to having chronic and severe anxiety and have lots of problems in their functioning. Considering the significant prevalence of this disorder, it is of utmost importance to be able to diagnose this disease on time so that its long term and painful consequences could be reduced ^[4]. Getting diagnosed by cancer and going through recovery process is a serious and a harmful experience, which may cause post traumatic disorder symptoms ^[5].

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Years of research has clarified the important role of emotion regulation in dealing with life's stressful events^[6]. The factor that has a key role in the mental health of individuals who have cancer is emotion regulation. The concept of emotion regulation refers to the variable that has a role in emotion regulation and emotion dysregulation. Emotion regulation refers to processes that make it possible for the individual to observe and change their emotional experiences. Emotion regulation mostly includes the evaluation of stressful situations in terms of being threatening and ordinary as well as methods that one uses when faced with stressful circumstances (Gross, 1999; cited by Bigdeli *et al.*, 2013)^[7, 8]. Briefly, it could be stated that individuals use various methods to regulate their emotions; one of these common methods is using cognitive strategies. Therefore, thoughts and cognitions play a significant role in the ability to manage, regulate and control the feelings and emotions after experiencing a stressful event^[6, 9]. This method of regulation has a direct relationship with the emergence and development of mental disorders. The current conceptualization of cognitive-behavioral therapy has mostly emphasized on the role of emotion dysregulation in the formation and continuance of psychopathology^[10]. Cognitive-behavioral therapy is beneficial in primary stages of patients suffering from cancer and some achievements have been obtained in the advanced and incurable stages of this disease. That is why it is suggested to use behavioral interventions such as regular desensitizing for cancer patients having medical fears regarding the acceptance of cancer therapy. In some of the cases, cognitive-behavioral interventions can help the patient survive and save their life before using pharmacotherapy or going through surgery^[11]. Researchers have utilized various combinations of psychological interventions to treat cancer including awareness training regarding the relationship between depression and the growth of cancer tumors, training coping strategies against stress, which itself includes relaxation, mental image, cognitive-behavioral therapy, and group therapy. The effectiveness of each of these therapies has been proven^[12]. Acceptance and Commitment Therapy summarily called as ACT (meaning performance in English) was firstly presented by Hayes during the last decade of 1980 using behavioral approaches toward treatment^[13]. This kind of treatment helps therapists to have a sprightly, purposeful and meaningful life through integrating acceptance and mindfulness interventions with commitment and change strategies. Unlike the classical CBT approaches, the aim of ACT is not to change the form or frequency of the intrusive thoughts and emotions, but to improve psychological flexibility^[14]. ACT approach believes that a patient is not a defeated, injured or hopeless person, instead this approach is based on a kind of empowerment that considers a value based and meaningful life to be everyone's right. The main emphasis of this therapy is on reducing the intensity and frequency of intrusive emotions and thoughts. Actually, acceptance and commitment is a therapeutic approach that emphasizes on the creation of psychological flexibility by

undermining the exaggerated effects of cognitions and evaluation used by human language. Despite CBT approach, ACT approach doesn't investigate the contents of one's thought, emotions and physical feelings; rather it explores the methods through which people consider their experiences. This approach emphasizes on the fact that the challenge and engagement with belief should be reduced. This point is based on the assumption that the process of engaging with thoughts or emotions worsens the problems^[15]. In this regard, various studies entitled psychological interventions have been conducted for patients with breast cancer so that through training effective approaches of coping with pressure, patient can have more control over the problem^[16]. Rost *et al.*, (2012) compared acceptance commitment therapy and behavioral-cognitive therapy of patients who are going through last stage of ovarian cancer in two groups for 12 sessions^[17]. The results indicated that in ACT group more improvement was observed regarding the distress and life quality of these patients; but there were no significant differences between both groups of CBT and ACT^[18]. These interventions seem to play a significant role in helping chronic patients due to training of skills and strategies. Therefore, it is necessary to find solutions to the emotional dysregulation that occurs in most mental disorders and plays a significant role in creating it^[19]. On the other hand, comprehensive researches have been conducted both in local and foreign countries regarding the effects of various kinds of psychological interventions on the mentioned criteria; however, considering the certain conditions of patients having cancer especially breast cancer, it is essential to find the best psychological intervention method. Thus, considering the importance of psychological interventions, the purpose of the current study was to introduce a method that can have the most and best effect regarding mental health and improvement of life level of patients with the least possible cost. Therefore, considering the aforementioned issues, the purpose of the current study was to compare the effect of two CBT and ACT approaches on emotion dysregulation in women with breast cancer.

Methodology

The current study was an applied research in terms of purpose and it was a quasi-experimental and quantitative study in terms of methodology. It had pre-test, post-test and follow-up sessions. After convenient sampling 60 women with breast cancer who were selected from the cancer research center of Shahid Beheshti University of Medical Sciences (Shohadaye Tajrish Hospital of Tehran) were administered into two groups of experiment (cognitive-behavioral and acceptance commitment therapy) and control. The intervention group received 10 sessions of therapy and a follow-up test was held after 2 months. Each session was held once a week lasting 90 minutes. The questionnaires regarding the problems in emotion dysregulation were administered in the beginning and at the end of sessions as pre-

test and post-test. The control group did not undergo any intervention. They were suggested to participate in the held session after finishing the project, if preferred. After finishing the project and in the final session, the post-test was administered and finally, 2 months after finishing the intervention, follow-up session were held on three groups. The participants were informed that they can be aware of the results of the study, if desired and they could exclude from the study when they wished in a way that no problems would occur in the medical treatment processes. Moreover, it was emphasized that all their information would remain confidential in all phases of the study. Statistical population of the study included all women who had stage 1 and 2 of breast cancer and had referred to the Shohadaye Tajrish Hospital in 2019, who had been diagnosed with breast cancer by the oncologist. These patients had referred to the hospital from 2017.03.08 to 2018.04.21. Inclusion criteria to the study while maintaining ethical considerations was aging between 30 to 60 years old, and not having other chronic disease, not having cognitive and motional defects. Exclusion criteria were simultaneous participation in psychological sessions, having chronic neurological diseases such as schizophrenia and addiction, not having sufficient motivation to participate in the sessions. The protocol of cognitive-behavioral session had been obtained from "cognitive-behavioral therapy for cancer patients; compiled by Morey and Greer (2012)" and the protocol used by ACT was obtained from "better life with chronic disease; compiled by Brassington et al., (2015)" [20].

Research Instrument

Difficulties in Emotion Regulation Scale (DERS) was proposed by Gratz and Roemer (2004) [21]. The primary difficulty scale in emotion regulation is a measurement tool having 41 self-reporting items, which evaluates the difficulties in emotion regulation in terms of clinical considerations. The items of this scale have been formed based on various discussions with colleagues familiar with emotion regulation texts. Generalized Expectancy for Negative Mood Regulation Scale (NMR) was proposed by Catanzaro and Mearns (1990) [22]. Factor analysis indicated the existence of 6 factors including non- acceptance of emotional responses, difficulty in doing a purposeful behavior, difficulty in controlling impulse, lacking emotional awareness, limited access to emotional regulation strategies and not having emotional clarity. The results showed that this scale had a high internal consistency (0.93) [21]. All of the six scales of DIRS had a Cronbach alpha of more than 80%. Moreover, DIRS had a significance correlation with NMR scale as well as acceptance and performance questionnaire [21]. The reliability coefficient of this scale was obtained 0.92 in Iran, based on the Cronbach alpha of the study conducted by Azizi, Mirzaie and Shams (2010) [23]. In addition, the results of the study of Khanzadeh and Goudarzi (1990) indicated that Cronbach alpha had been used in all of the sub-scales of difficulty in emotion regulation scale [24]. The results also showed that the reliability of each of the difficulty scales in

emotion regulation was appropriate and their Cronbach alpha was in the rage of 0.70 to 0.85. Moreover, these results indicated that the overall reliability of this scale was appropriate.

Intervention

Table 1. Describing cognitive-behavioral therapy sessions

| Session | Procedure |
|---------|---|
| First | Participants introducing themselves, explaining the effectiveness of cognitive-behavioral therapy, stating the experience of living with cancer and defining anxiety and stress, diaphragm breathing, muscle relaxation, mental image, group interaction regarding the experiences of practices |
| Second | Defining emotion and being aware of the process of physiologic effects of emotions. Obtaining feedback from group members regarding their emotions, group interaction for evaluating their emotions. |
| Third | Introducing negative automatic thoughts and cognitive distortions using examples and the way that were are affected. |
| Fourth | Determining self-talks and identifying negative and positive irrational self-talks, group interaction for challenging beliefs and substituting rational and beneficial thoughts for group members. |
| Fifth | Reviewing previous session, reviewing homework, group interaction for identifying their behavior regarding various problems of life, identifying coping strategies against statuses related to breast cancer and categorizing them into efficient and inefficient styles. |
| Sixth | Reviewing previous session, obtaining feedback from doing previous practices, defining anger and anger stating patterns, investigating the physiologic effects of anger with the help of members, group interaction for determining the consequences of anger and determining inefficient consequence patterns of anger. |
| Seventh | Reviewing previous session, obtaining feedback from doing previous practices, determining anger consequences and identifying inefficient anger patterns, group interaction for identifying the ways of changing inefficient patterns of anger. |
| Eighth | Reviewing previous session, group interaction for defining self-expression and decisiveness, identifying active and passive patterns of member expressions with the help of each other, expressing the experiences of members from passive behaviors and stating emotions, investigating the barriers of expressive behavior. |
| Ninth | Reviewing previous session, obtaining feedback from doing previous practices, group interaction for identifying self-relational styles, group interaction for investigating the reasons behind not being decisive, investigating the ways of being decisive and self-expression. |

| | | | |
|-------|--|--------|--|
| Tenth | Reviewing previous session, obtaining feedback from doing previous practices, group interaction for identifying various social support sources and determining the importance of relationships and social support, group interaction for determining the ways to improve the quality of social networks. | Eighth | Group interaction for reporting the development of the work (what they have learnt, what they do differently now, which practices need to be changed, which important issues have not been solved yet). Group interaction for programming and performance, practicing mindfulness and self-observance, group interaction for separating the self from performance. |
|-------|--|--------|--|

Table 2. Describing ACT sessions

| Sessions | Procedure | | |
|----------|--|-------|---|
| First | Introducing participants with each other, explaining the effectiveness of ACT, group interaction for stating their experience of living with breast cancer, group interaction for investigating how to overcome breast cancer and the continuance of innovative hopelessness | Ninth | Group interaction for defining the concept of satisfaction, helping the group using the concept of satisfaction for reaching to the conclusion that although they have not chosen to have breast cancer, they can choose how to respond it. Group interaction for investigating the causes of retreating the movement in the path of values and investigating the benefits of being committed to the values despite having problems and difficulties. |
| Second | Exploring the notes through cooperating with members and investigating barriers that occur while doing homework. Defining the concept of pain and doing primary and secondary pain practices. | Tenth | Group interaction for using techniques that have been learnt during the sessions using the metaphor of instrument box, group interaction for defining regress and that it could happen to all members and investigating regression coping strategies and identifying negative consequences. |
| Third | Group interaction for investigating undesired thoughts and emotions regarding breast cancer as well as the barriers of valuable life, a metaphor for bus passengers Group interaction with the aim of identifying the destructive role of suppressing thoughts and emotions and stating the metaphor of white rabbit and tug of war of monster, practicing mindfulness and the interaction of group members and stating their experiences regarding mindfulness practice and stating the metaphor of leaves on the water. | | |
| Fourth | Identifying introductory faces that are heroes from members' view and group interaction for identifying self-values while interacting with others, determining values using value lists, practicing 80 years old birthday party and encouraging members for sharing their values, group interaction for identifying the role of values in a fruitful life along cancer disease, practicing how to scan body awareness. | | |
| Fifth | Determining the best way for creating changes in life to be in the same way with values and using group discussions for describing value differences and purpose variations, filling the form of differences in terms of values and purposes, summing up and concluding and helping members for clarifying the differences between aims and values. | | |
| Sixth | Group interaction regarding the investigation of the role of thoughts in removing the barriers in order to live based on values using bus passengers' metaphor, group interaction regarding the difference between thought and reality. Practicing how to categorize thoughts and giving examples of determining the aim, having interaction and receiving feedback from the group, group interaction for solving the problem, practicing mindfulness. | | |
| Seventh | Group interaction for investigating the barriers of having a valuable life, group interaction for defining assertiveness and the benefits of having assertive behavior using the metaphor of bus driver, playing the role of assertive behavior in the group, practicing the path and footprints. | | |

To analyze the data, descriptive statistics (mean, standard deviation), inferential statistics and variance analysis test through repetitive measuring an inter-group factor (pre-test, post-test and follow-up phases) as well as a between-group factor (grouping into three ACT, CBT and control interventions) were utilized. Moreover, to investigate the effectiveness of the effect size (Eta coefficient) was calculated.

Findings

According to the analysis of demographic data, the mean age of participants was 45.80 having the standard deviation of 5.35 in the cognitive-behavioral group, it was 45.40 having the standard deviation of 8.07 in ACT group, and it was 46.70 having the standard deviation of 10.18 in the control group. Regarding the occupational demographic variable of the selected samples in the intervention and control groups, the highest frequency was related to the housewife group having 21 members and the lowest frequency was related to the part-time job group having 4 members. The employee group was placed in the middle range having 5 members. Regarding the marital status variable of the selected samples in the intervention and control groups, 23 individuals (76.7%) were married and 7 individuals (27.3%) were single. Moreover, regarding the age of diagnosing breast cancer disease variable, the mean of diagnosis age was 43.54 in the cognitive-behavioral group, it was 43.86 in ACT group and it was 41.69 in the control group. Regarding the time passed through diagnosing the breast cancer disease variable, the mean of time passed through diagnosing the disease was 4.39 in the cognitive-behavioral group; it was 3.59 in ACT group and 3.64 in the control group.

Table 3. Investigating the normality of research variables using skewness, Kurtosis and Shapiro-Wilk test

| Test Variable | Skewness | Kurtosis | Shapiro-Wilk | | |
|--|----------|----------|--------------|----|--------------|
| | | | Statistic | df | Significance |
| Not accepting emotional responses | 0.29 | -0.59 | 0.93 | 30 | 0.33 |
| Difficulty in doing a purposeful behavior | 0.5 | -0.30 | 0.96 | 30 | 0.51 |
| Difficulty in controlling the impulse | -0.16 | -0.45 | 0.94 | 30 | 0.21 |
| Lacking emotional awareness | 0.21 | -0.61 | 0.96 | 30 | 0.13 |
| Having limited access to emotion regulation strategies | 0.18 | -0.74 | 0.93 | 30 | 0.48 |
| Not having emotion clarity | 0.16 | -0.38 | 0.95 | 30 | 0.18 |

As it could be observed in Table 3, skewness and kurtosis of research variables were in the acceptable range of +1 to -1 and the skewness and kurtosis of none of them had severe deviation from the normal state. In addition to these issues, the results of Shapiro-Wilk test was not statistically significant in any of the research variables ($P>0.05$). This means that considered research variables had an equal and normal distribution; therefore, the normality of distribution in research variables was confirmed.

Regarding the investigation of the increasing effect of therapeutic techniques of cognitive-behavioral group on the reduction of emotion dysregulation of cancer patients, covariance analysis test, using the 25th SPSS software was used.

As it is observed in Table 4, the results of covariance analysis test showed that there was a significant difference between the scores of post-test in the cognitive-behavioral group as well as control group in terms of not accepting emotional responses, difficulty in doing purposeful behavior, difficulty in controlling the impulse, lacking emotional awareness, not having emotional clarity and the overall score of difficulty in emotion regulation after adjusting the effect of pre-test. Therefore, considering the significant change of mean in cognitive-behavioral therapy group in the post-test compared to the control group, it could be stated that cognitive-behavioral interventions had a significant effect in reducing emotion regulation problems of women having breast cancer.

Table 4. The summary of the results of multivariate covariance analysis test regarding the comparison of the

post-test score of emotion dysregulation sub-components in both cognitive-behavioral group and control group

| Variable | The source of changes | SS | df | MS | F | Sig | Eta square |
|--|-----------------------|---------|----|---------|-------|--------|------------|
| | | | | | | | |
| | Group | 95.58 | 1 | 95.58 | 13.6 | 0.01 | 0.43 |
| | Error | 124.34 | 17 | 7.31 | | | |
| Difficulty in doing purposeful behavior | Pre-test | 131.90 | 1 | 131.90 | 26.59 | <0.001 | 0.61 |
| | Group | 164.21 | 1 | 164.21 | 33.11 | <0.001 | 0.66 |
| | Error | 84.30 | 17 | 4.95 | | | |
| Difficulty in controlling the impulse | Pre-test | 289.05 | 1 | 289.05 | 32.36 | <0.001 | 0.65 |
| | Group | 91.96 | 1 | 91.96 | 10.29 | 0.01 | 0.37 |
| | Error | 151.84 | 17 | 8.93 | | | |
| Lacking emotional awareness | Pre-test | 35.62 | 1 | 35.62 | 3.35 | 0.085 | 0.16 |
| | Group | 66.006 | 1 | 44.006 | 6.20 | 0.01 | 0.27 |
| | Error | 180.78 | 17 | 10.63 | | | |
| Having limited access to emotion regulation strategies | Pre-test | 192.93 | 1 | 192.93 | 9.92 | 0.01 | 0.36 |
| | Group | 66.15 | 1 | 66.15 | 3.40 | 0.083 | 0.16 |
| | Error | 330.46 | 17 | 19.43 | | | |
| Not having emotional clarity | Pre-test | 95.47 | 1 | 95.47 | 10.74 | 0.01 | 0.38 |
| | Group | 134.41 | 1 | 134.41 | 15.12 | 0.01 | 0.38 |
| | Error | 151.12 | 17 | 8.89 | | | |
| Difficulty in emotion regulation | Time | 4935.05 | 1 | 4935.05 | 46.16 | <0.001 | 0.73 |
| | Group | 2431.62 | 1 | 2431.62 | 22.74 | <0.001 | 0.57 |
| | Group | 1817.44 | 17 | 106.90 | | | |

Regarding the investigation of the increasing effect of ACT group therapy on reducing emotion dysregulation of patients having breast cancer, covariance analysis was utilized.

As it is observed in Table 5, the results of multivariate covariance analysis test indicated that there was a significant difference between the score of post-test in ACT group in terms of not accepting emotional responses, difficulty in doing purposeful behavior, difficulty in controlling the impulse, not having emotional clarity and the overall score of difficulty in emotion regulation after adjusting the effect of pre-test.

Therefore, considering the significant change of mean in ACT group in the post-test compared to the control group, it could be stated that ACT group had a significant effect in reducing emotion regulation problems of women having breast cancer.

Moreover, based on the obtained amount of Eta coefficient regarding between group differences, it could be stated that ACT could explain respectively, 0.32, 0.45, 0.11, 0.27, 0.48 and 0.56 percent of variance changes in variables of not accepting emotional responses, difficulty in doing purposeful behavior, difficulty in controlling the impulse, lacking emotional awareness, having limited access to emotion regulation strategies, not having emotional clarity and the overall score of difficulty in emotion regulation in the post-test phase in women having breast cancer.

Table 5. The summary of the results of multivariate covariance analysis test regarding the comparison of the

| post-test score of emotion dysregulation sub-criteria in both ACT group and control group | | | | | | | |
|---|-----------------------|--------|----|--------|-------|--------|------------|
| Variable | The source of changes | SS | df | MS | F | Sig | Eta square |
| Not accepting emotional responses | Pre-test | 140.13 | 1 | 140.13 | 27.94 | <0.001 | 0.62 |
| | Group | 40.30 | 1 | 40.30 | 8.03 | 0.01 | 0.32 |
| | Error | 85.26 | 17 | 5.01 | | | |
| Difficulty in doing purposeful behavior | Pre-test | 88.19 | 1 | 88.19 | 15.95 | 0.01 | 0.48 |
| | Group | 78.87 | 1 | 78.87 | 14.26 | 0.01 | 0.45 |
| | Error | 94.005 | 17 | 5.53 | | | |
| Difficulty in controlling the impulse | Pre-test | 259.06 | 1 | 259.06 | 21.23 | <0.001 | 0.55 |
| | Group | 173.95 | 1 | 173.95 | 14.25 | 0.01 | 0.45 |
| | Error | 207.43 | 17 | 12.20 | | | |
| Lacking emotional awareness | Pre-test | 29.24 | 1 | 29.24 | 2.25 | 0.15 | 0.11 |
| | Group | 27.85 | 1 | 27.85 | 2.13 | 0.16 | 0.11 |
| | Error | 220.06 | 17 | 220.06 | | | |
| Having limited access to | Pre-test | 224.63 | 1 | 224.63 | 12.95 | 0.01 | 0.43 |
| | Group | 111.04 | 1 | 111.04 | 6.40 | 0.01 | 0.27 |

| emotion regulation strategies | | | | | | | |
|----------------------------------|----------|---------|--------|---------|-------|--------|------|
| Not having emotional clarity | Pre-test | 148.56 | 1 | 148.56 | 25.14 | <0.001 | 0.59 |
| | Group | 93.92 | 1 | 93.92 | 15.89 | 0.01 | 0.48 |
| Difficulty in emotion regulation | Pre-test | 2418.76 | 1 | 2418.76 | 17.02 | 0.01 | 0.50 |
| | Group | 3061.27 | 1 | 3061.27 | 21.54 | <0.001 | 0.56 |
| Error | 2415.23 | 17 | 142.07 | | | | |

In the following part, it has been sought to respond to the first question of the research regarding whether there is a difference between the effect of CBT intervention and ACT on emotion dysregulation of women having breast cancer. The results of paired comparisons of Benferroni test have been presented in Table 6 comparing groups in pair regarding emotion dysregulation and its sub-criteria.

Table 6. The results of Benferroni follow-up test for comparing the groups in pair in terms of emotion dysregulation and its sub-criteria

| Variable | Group | Group | Mean differences | Deviation error | Possible amount | Confidence distance | |
|--|-------|-------|------------------|-----------------|-----------------|---------------------|-------------|
| | | | | | | Upper limit | Lower limit |
| Not accepting emotional responses | CBT | ACT | -0.47 | 1.62 | 1 | -4.61 | 3.68 |
| Difficulty in doing purposeful behavior | CBT | ACT | -1.93 | 1.28 | 0.433 | -5.22 | 1.35 |
| Difficulty in controlling the impulse | CBT | ACT | -4.33 | 2 | 0.114 | -9.47 | 0.74 |
| Lacking emotional awareness | CBT | ACT | -2.77 | 1.21 | 0.093 | -5.87 | 0.34 |
| Having limited access to emotion regulation strategies | CBT | ACT | -3.77 | 2.24 | 0.314 | -9.49 | 1.96 |
| Not having emotional clarity | CBT | ACT | -1.33 | 1.57 | 1 | -5.34 | 2.67 |
| The overall score of having difficulty in emotion regulation | CBT | ACT | -14.80 | 7.17 | 0.147 | -33.13 | 3.53 |

As it is observed in Table 6, two interventions of cognitive-behavioral therapy and acceptance commitment therapy had the same effect on reducing emotion dysfunction problems of women having breast cancer in the post-test and follow-up sessions. Actually, no significant difference has been reported regarding the effect of CBT and ACT on emotion dysregulation and its sub-criteria. The comparison of cognitive-behavioral therapy and acceptance commitment therapy with control group is in sub-criteria of emotion dysregulation of women with breast cancer.

Discussion and Conclusion

Breast cancer is the most prevalent cancer among women. Regarding refractory diseases such as cancer, being well and healthy includes physical, mental and social criteria. In order to obtain the best result, it is essential to have multi-dimensional interventions including physical and mental ones. Medical actions are considered only one dimension of the therapy since psychological tensions resulting from cancer disease cause anxiety and depression in patients, not reducing and treating these reactions make the hospitalization period longer, and cause medical treatment disorders and hopelessness in person's life [11].

The current research compared the effect of cognitive-behavioral therapy and acceptance Commitment therapy on difficulties in emotion regulation in women with breast cancer. The results of the study indicated the effectiveness of both methods on reducing the difficulties in emotion regulation of women with breast cancer. The results of covariance analysis test indicated that there was a significant difference between the scores of post-test CBT group as well as ACT and control group in terms of emotion regulation difficulty after adjusting the effect of pre-test. Cognitive-behavioral therapy had an increasing effect on reducing the emotion dysregulation of breast cancer patients. This finding was in line with the first hypothesis of the study. The effectiveness of cognitive-behavioral group in emotion regulation was in line with the results of the studies conducted by Ghorbani *et al.*, (2011); Baqhernia *et al.*, (2015); Levinsoon (2014); and Den (2013) [25-28]. The current conceptualization of cognitive-behavioral therapy had an increasing emphasis on the role of emotion dysregulation as well as the formation and continuance of psychopathology [9].

According to DSM5, post-traumatic stress disorder is caused by being exposed toward death and being threatened to death, severe injury or actual or threatened sexual violence for oneself or another. This leads to the experience of arousal, cognitive and

behavioral avoidance, high anxiety, repetitive, involuntary and disturbing memories of the traumatic event in the affected individual^[1]. According to this definition, having cancer is experienced as a severe threat and traumatic event in the individual. Of these cancers, breast cancer with a prevalence rate of 12%^[29] is the most prevalent type of cancer and more than 40% of cancer survivors (one individual among three) develop PTSD (Post-traumatic stress disorder) symptoms^[30].

Primarily, cognitive-behavioral approach in psychopathology considers two cognitive emotion regulation approaches (re-evaluation and problem solving) as the adaptive strategies. Re-evaluation has been considered to include interpretations or positive perspectives toward a stressful situation as a method for reducing stress^[31]. Cognitive-behavioral therapy has a main share in improving the overall emotional, psychological and social health of patients who have cancer due to its effectiveness in treating depression and anxiety disorders as well as PTSD^[11]. Studies have shown that PTSD is so prevalent among cancer patients that if left untreated, it can cause long-term discomfort in the individual. Cognitive-behavioral therapy has proved to be one of the most effective therapeutic methods for this severe emotional disorder. The basic pre-assumption for this approach is that the meaning one allocates for events, determines his emotions and behaviors. The psychological problems that member's face, such as anxiety, depression, dissatisfaction with interpersonal relations, etc., due to therapies exists as the individuals provide inter-cognitive responses to the environment which is non- adaptive. The aim of any kind of cognitive-behavioral therapy such as group therapy is empowering the individual toward a system of meaning that increases improvement and health rather than developing symptoms (Sarason and Sarason, 2003; cited by Zinat, 2012)^[32]. Studies have shown that cognitive-behavioral therapy improves the status of emotion regulation. Moreover, Baghernia *et al.*, (2015) reported that cognitive-behavioral therapy affected emotion regulation^[26].

Acceptance commitment therapy had an increasing effect on reducing emotion dysregulation of patients with breast cancer. The results showed that this hypothesis was confirmed, which was in line with the findings of other conducted studies. For example in a study it was indicated that ACT had a significant effect on reducing negative emotions, self-disturbing and impulsive behaviors^[33]. Another study indicated that ACT based on teachings such as meaningful living and purposefulness along with values in life helped to improve emotion regulation in individuals^[34]. When women with breast cancer obtain emotion regulation skills, they can manage, adjust and regulate their emotions to reduce the intensity of unpleased and painful emotions in order to experience more positive emotions. Gratz & Roemer (2004) based on the conceptualization of the difficulties in emotional regulation and empirical research in this field, raise six difficulties in emotional regulation. Due to these difficulties, the person faces difficulties in achieving personal

goals and environmental desires, and in cases where these difficulties are severe and complex, it leads to various psychological disorders. The popularity of studies regarding the acceptance has been increased since 1990s as ACT approaches started developing. For example, the role of ACT^[15] and other approaches was confirmed. The final aim of acceptance as an emotion regulation method is not to change the experienced emotions; but to obtain them without striving to control them^[35]. Therefore, acceptance is completely different than other studied methods of emotion regulation (for example suppression, most of the forms of cognitive evaluation, rumination) that are mostly based on a kind of actively changing emotional status in terms of quality, intensity, length, or the frequency of emotions. Despite these differences, acceptance exists in most of the psychological studies of emotion regulation and it is mostly compared with other regulation strategies^[36]. Considering the concept presented by Gratz and Roemer (2004), three cases of a) not accepting emotions, b) not having emotional awareness and c) clarity are among six important cases of difficulties in emotion regulation. Depending whether acceptance focuses as effectiveness on attention or acceptance as a way for comprehending all emotional experiences, these two approaches to acceptance-based strategies point to another significant issue, which could be observed in the acceptance literature. This guideline has focused on two criteria in ACT: 1) Readiness, which is being ready and explicit to completely experience emotions^[37] and 2) Presence, which is related to focusing on the current moment^[37]. Guidelines emphasize on readiness, desire to control, adjustment or intervention in emotional processes. Most of the studies have shown that ACT and cognitive-behavioral therapy, both affect various psychological variables to the same extent among which, the studies conducted by Kiani, Sabahi, Makvand Hosseini (2020), Khanjani Vashki, Shafiabad, Fatehizadeh *et al.*, (2016), Forman, Herbert, Moitra (2007), Juarascio, Forman, & Herbert (2010), Block (2002), Arch, Eifert, Davies, Vilardaga *et al.* (2012), Wolitzky-Taylor, Arch, Rosenfield, *et al.* (2012), Brown, Forman, Herbert *et al.* (2011), Smout, Longo, Harrison *et al.*, (2010) and Wetherell, Afari, Rutledge *et al.* (2011) could be pointed out. In order to further investigate in this field, it is suggested that the present study be performed on patients with various chronic diseases and other cancers^[38-47]. Since patients expressed sadness for sessions ending and also their need to intervene at different times and in different stages, it is recommended that specialized individual and group counseling centers to be allocated in oncology clinics

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