Comparing the effectiveness of mindfulness-based cognitive therapy and treatment based on acceptance and commitment therapy on reducing anxiety and depression in women with post-traumatic stress disorder caused by the accident Najaf Abad city of Esfahan

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Abstract

Aims Secondary trauma is a psychological consequence of direct and prolonged contact with a post-traumatic stress disorder person. The purpose of this study was to compare the effectiveness of mindfulness-based cognitive therapy (MBCT) and treatment based on acceptance and commitment therapy (ACT) on reducing anxiety and depression in women with post-traumatic stress disorder caused by the accident, with controlling the effect of depression, anxiety and stress. Methods: In this quasi-experimental research with pretest-posttest with control group design, 36 women of post-traumatic stress disorder caused by the accident referred to Modarress Psychiatric Hospital of Esfahan, Iran in 2015 were studied. The people who have attained high score on the secondary trauma test were randomly assigned to two experimental groups and one control group. The research instruments were a demographic questionnaire, questionnaire of secondary post-traumatic stress, and questionnaire of depression, anxiety and stress. The interventions (Mindfulness-based cognitive therapy and acceptance commitment therapy) in the experimental group were 8 weeks and once a week, the control group did not receive any training. The analysis of data was performed by covariance. Conclusion: The findings from the study showed that the intervention based on acceptance and commitment therapy and mindfulness-based cognitive therapy for depression and anxiety have had significant effect (P<0/05), But Mindfulness-based cognitive therapy in reducing anxiety significantly more effective than treatment is based on acceptance and commitment (P<0/05). The results of this study showed that both interventions can be effective in reducing depression and anxiety.

Keywords: Post-Traumatic Stress Disorder, mindfulness, depression, anxiety.
1. Introduction

Post Traumatic Stress Disorder (PTSD) will be included in a new chapter in DSM-5 on Trauma-and Stress or -Related Disorders. This move from DSM-IV, which addressed PTSD as an anxiety disorder, is among several changes approved for this condition that is increasingly at the center of public as well as professional discussion. The diagnostic criteria for the manual’s next edition identify the trigger to PTSD as exposure to actual or threatened death, serious injury or sexual violation. The exposure must result from one or more of the following scenarios, in which the individual:

• directly experiences the traumatic event;
• witnesses the traumatic event in person;
• learns that the traumatic event occurred to a close family member or close friend (with the actual or threatened death being either violent or accidental); or
• experiences first-hand repeated or extreme exposure to aversive details of the traumatic event (not through media, pictures, television or movies unless work-related).

Compared to DSM-IV, the diagnostic criteria for DSM-5 draw a clearer line when detailing what constitutes a traumatic event. Sexual assault is specifically included, for example, as is a recurring exposure that could apply to police officers or first responders. Language stipulating an individual’s response to the eventintense fear, helplessness or horror, according to DSM-IV has been deleted because that criterion proved to have no utility in predicting the onset of PTSD. DSM-5 pays more attention to the behavioral symptoms that accompany PTSD and proposes four distinct diagnostic clusters instead of three. They are described as re-experiencing, avoidance, negative cognitions and mood, and arousal (American Psychiatric Association, 2013). Re-experiencing covers spontaneous memories of the traumatic event, recurrent dreams related to it, flashbacks or other intense or prolonged psychological distress. Avoidance refers to distressing memories, thoughts, feelings or external reminders of the event. Negative cognitions and mood represents myriad feelings, from a persistent and distorted sense of blame of self or others, to estrangement from others or markedly diminished interest in activities, to an inability to remember key aspects of the event. The disturbance, regardless of its trigger, causes clinically significant distress or impairment in the individual’s social interactions, capacity to work or other important areas of functioning. It is not the physiological result of another medical condition, medication, drugs or alcohol. Post-traumatic stress disorder (PTSD) is the recurring and intrusive recollection of an overwhelming traumatic event.1 Individuals with PTSD relive the traumatic event in a variety of ways (e.g. memories, flashbacks, dreams), avoid stimuli associated with the event (e.g. places, people, thoughts, feelings, dissociation), and experience symptoms of increased arousal (e.g. difficulty sleeping, irritability, decreased concentration, hyper vigilance).1 A Canadian study based on a nationally representative sample of 3,006 adults reported that the prevalence rates of lifetime PTSD was estimated to be 9.2%, with one month prevalence rates of 2.4% Furthermore, it was estimated that 63.0%, 44.7%, and 41.3% of PTSD patients had major depression, substance abuse and dependence, and alcohol abuse and dependence, respectively.2 The treatment for PTSD includes psychotherapy (e.g. exposure psychotherapy, supportive psychotherapy) and drug therapy. Recommendations were reported for pharmacotherapy, psychotherapy, somatic treatment, and complementary and alternative medicine which included mindfulness (Younesi, 2008). Mindfulness training teaches
a way of being rather than of doing, allowing participants to step back from automatic behaviors and habit thought patterns (American Psychiatric Association, 2013). MBCT is a psychological therapy which uses features of cognitive therapy with mindfulness techniques of Buddhism. MBCT consists of accepting thoughts and feelings without judgment rather than trying to push them out of consciousness, with aim of correcting cognitive distortions. MBCT was found by Zindel Segal, Mark Williams and John Teasdale, who based MBCT on a program developed by Jon Kabat-Zinn called Mindfulness- Based Stress Reduction (MBSR), (Hayes, 2004) which was adapted to use for patients with major depressive disorder. The aim of MBCT is not directly provide relaxation or happiness, but is rather a "freedom from the tendency to get drawn into automatic reactions to thoughts, feelings, and events"( Segal, 2002). MBCT programs usually consist of an eight week course with two-hour classes in each session with weekly assignments to be done after the sessions. The aim of the program is to enhance awareness so clients are able to respond to things instead of react to them. Mindfulness practice helps us to see the patterns of the mind more clearly; and to learn to recognize when our mood is beginning to go down. Mindfulness teaches us a way in which we can get in touch with the experience of being alive. Low mood can bring back memories and thoughts from the past, and make us worry about the future. Mindfulness helps to halt the escalation of these negative thoughts and teaches us to focus on the present moment, rather than reliving the past or pre-living the future. When we start to feel low, we tend to react as if our emotions were a problem to be solved: we start trying to use our critical thinking strategies. When these do not work, we re-double our efforts to use them. We end up over-thinking, brooding, ruminating, and living in our heads. Mindfulness helps us to enter an alternative mode of mind that includes thinking but is not just thinking. It teaches us to shift mental gears, from the mode of mind dominated by critical thinking (likely to provoke and accelerate downward mood spirals) to another mode of mind in which we experience the world directly, non-conceptually, and non-judgmentally. Mindfulness takes a different approach. It helps develop our willingness to experience emotions, our capacity to be open to even painful emotions. It gives us the courage to let distressing moods, thoughts and sensations to come and go, without battling with them (Younesi,2008). Increasing ability to rest within the present moment requires training in concentration and sustained attention. Patients are trained to ground themselves in the moment as a starting point, for example, by paying attention to the movement of the breath or to body sensations. The body and the breath are constantly present, and the mind can return to them whenever awareness is lost. Participants in the classes discover that they cannot be fully aware of body sensations or the breath from moment to moment, if their minds wander off to another place or time. The body scan practice is designed to increase patients’ ability repeatedly to engage, sustain, and then disengage attention. Participants move a focused spotlight of attention from one part of the body to another, as if they could “breathe in” to each location and explore sensations in depth just as they are before letting go and moving on. Participants are encouraged to approach whatever sensations arise with an attitude of kindness, open curiosity, without judging them. When the mind wanders, they are invited simply to notice where it has gone and gently to shift attention back to the body. By staying with the body scan, mothers had an opportunity to notice how their experience changed from moment to moment and to practice a different way of responding to intense, uncomfortable sensations (Siegel, 2007). Developing nonjudgmental awareness of thoughts, body sensations, and physical stimuli (sights, sounds) facilitates adoption of this same nonjudgmental attitude when responding to negative thoughts, for example, about the self. Training in awareness of thoughts occurs later in the
program, during sitting meditations. Participants develop an ability to see thoughts as mental events that pass through the mind, rather than as facts or central parts of their identity. For example, one exercise involves imagining thoughts that arise during sitting meditation as passing images on a cinema screen or as leaves floating past on a river. When mothers used this technique, they were surprised to discover that sustained but decentered attention to the thoughts caused them to lose their ability to provoke an emotional reaction. The subjects found that many thoughts disappeared altogether as they watched them come and go; and this made them keen to experience their thoughts and emotions by this technique in other situations. Their attitudes toward their thoughts changed from fear and sadness to investigative curiosity. Conversely, ACT explicitly does not target symptom-reduction as a primary goal or set out to try to regulate or ‘control’ emotional or cognitive content (Hayes, 2008). Although proponents of ACT acknowledge that symptom reduction does occur this is regarded as a secondary by-product rather than the primary intended outcome (Hayes, 2008; Hayes et al., 2013). In fact, the helpfulness of control is explicitly questioned, both theoretically and with clients, and the process of therapy is predicated on a relinquishing of control as the desired end. Instead, ACT promotes psychological flexibility and aims to help individuals have a different and more allowing relationship with unwanted internal events rather than struggling with them. Psychological flexibility is defined as the individual’s ability to directly connect with and experience all aspects of their internal world, including those that are aversive; the ability to be more open to and accepting of experience rather than avoidant; of being less attached to or ‘fused’ with language-based concepts or narratives about the self, and the ability to make more values-consistent behavioral choices in order to increase life meaning or value (Hayes, Luoma, Bond, Masuda, & Lillis, 2006; Hayes et al., 2012). These are represented in the psychological flexibility model or ‘hexaflex’ (Hayes et al., 2012). Orsillo and Batten (2005) argue that ACT is a suitable treatment for clients presenting for treatment due to life problems related to the experience of a traumatic event. The authors make the case that PTSD can be conceptualized as a disorder that is developed and maintained as the result of unsuccessful attempts to control unwanted thoughts, feelings, and memories, particularly those related to the traumatic event. Orsillo and Batten (2005) provided a case example of a 51 year old Vietnam combat veteran successfully treated with ACT for a long history of PTSD symptoms including intrusive memories, nightmares, panic attacks, and significant guilt associated with the acts he had carried out in Vietnam. The authors demonstrated how effective application of several ACT-consistent interventions improved this patient’s functioning and how these interventions might be generalized to successfully treat other clients’ PTSD diagnoses. Twohig (2009) also presented a case study of a 43 year-old woman with PTSD and major depressive disorder successfully treated with 21 sessions of ACT after being unresponsive to 20 sessions of CBT. By the end of treatment, measurements of PTSD severity, depression, anxiety, psychological flexibility and trauma-related thoughts and beliefs had all significantly decreased. Although these two case studies are promising, the authors agree that significantly more research needs to be done on the effectiveness of ACT for the treatment of PTSD. ACT it self reflects its philosophical roots in several ways. ACT emphasizes workability as a truth criterion, and chosen values as the necessary precursor to the assessment of workability because values specify the criteria for the application of workability. Its causal analyses are limited to events that are directly manipulable, and thus it has a consciously contextualistic focus (Hayes et al., 2013). From such a perspective, thoughts and feelings do not cause other actions, except as regulated by context (Biglan &
Hayes, 1996; Hayes & Brownstein, 1986). Therefore, it is possible to go beyond attempting to change thoughts or feelings so as to change overt behavior, to changing the context that causally links these psychological domains.

1.1. Statement of Problem

PTSD is a psychological response to the experience of intense traumatic events, particularly those that threaten life. It can affect people of any age, culture or gender. Although we have started to hear a lot more about it in recent years, the condition has been known to exist at least since the times of ancient Greece and has been called by many different names. In the American Civil War, it was referred to as "soldier's heart;" in the First World War, it was called "shell shock" and in the Second World War, it was known as "war neurosis." Many soldiers were labelled as having "combat fatigue" when experiencing symptoms associated with PTSD during combat. In the Vietnam War, this became known as a "combat stress reaction." Some of these people continued on to develop what became known, in 1980, as post-traumatic stress disorder. Traumatic stress can be seen as part of a normal human response to intense experiences. In the majority of people, the symptoms reduce or disappear over the first few months, particularly with the help of caring family members and friends. In a significant minority, however, the symptoms do not seem to resolve quickly and, in some cases, may continue to cause problems for the rest of the person's life. It is also common for symptoms to vary in intensity over time. Some people go for long periods without any significant problems, only to relapse when they have to deal with other major life stress. In rare cases, the symptoms may not appear for months, or even years, after the trauma.

1.2. Depression and Post Traumatic Stress Disorder (PTSD)

Depression is a general state of low mood and a loss of interest or pleasure in activities that were once enjoyed. Life becomes flat and grey, and nothing seems fun, exciting, or enjoyable anymore. These depressed states can be very intense, leading to a total withdrawal from others and a state of numbness, or they can be lower in intensity just feeling "down in the dumps." They may last for as little as a few hours or as long as months or even years. In more severe cases, the person may believe that life is no longer worth living. Around 50% of people with chronic PTSD also have significant problems with depression. Depression is often associated with guilt. People with PTSD often report strong feelings of guilt, shame, and remorse. This may be about the fact that they survived while others did not; it may be about what they had to do to survive; it may be related to things they did about which they now feel ashamed. The nature of war is such that there are often no acceptable or "good" options: all options are bad (for example, kill or be killed). Sometimes the guilt results from trying to apply civilian, or peacetime, standards to a combat situation. If we judge our actions then by our standards now, we may end up feeling guilty and ashamed. For some Veterans, those feelings can be very damaging and can get in the way of recovery. They are hard to work on, but it is important to try and reduce the intensity and strength of guilt by challenging the thoughts and beliefs associated with those feelings.

Common symptoms of depression:
• Feeling low, down in the dumps, miserable
• Feelings of worthlessness, helplessness, and hopelessness
• Lack of energy, easily tired
• Lack of enthusiasm, difficulties with motivation
• Loss of interest and pleasure in normal activities
• Lack of appetite and weight loss
• Loss of sexual interest
• Difficulty sleeping or sleeping too much
• Poor concentration, memory, and decision making
• Thoughts of suicide or death

1.3. Anxiety and Post Traumatic Stress Disorder (PTSD)
Anxiety is best described as a state of apprehension and worry that something unpleasant is about to happen. It is often accompanied by a range of physical symptoms which are, in themselves, very frightening. Sometimes people experiencing these symptoms believe that they are going to die from a heart attack or go crazy. Anxiety can be specific to certain situations (such as social events, crowded places, or public transport), or it can be a general state of worry. It can become very disabling, as people tend to avoid a wide range of situations that make them anxious. The symptoms are very unpleasant and may cause a great deal of distress.
Common symptoms of anxiety:
• Apprehension, fearfulness, or terror
• Shortness of breath and tightness in the chest
• Palpitations and increased heart rate
• Sweating
• Shaking, trembling, or dizziness
• Fear of losing control or going crazy
• Excessive worry
• Feeling restless and on edge
• Muscle tension
• Physical disorders (e.g., skin complaints, stomach upsets, aches and pains)

2. The research goal
The purpose of this study was to Compare the effectiveness of mindfulness-based cognitive therapy (MBCT) and treatment based on acceptance and commitment therapy (ACT) on reducing anxiety and depression in women with post-traumatic stress disorder caused by the accident, with controlling the effect of depression, anxiety and stress Najaf Abad city of Esfahan.

2.1. Sample size and sampling
In this quasi-experimental research with pretest-posttest with control group design, 36 women of post-traumatic stress disorder caused by the accident referred to Modarres Psychiatric Hospital of Esfahan, Iran in 2015 were studied. The people who have attained high score on the secondary trauma test were randomly assigned to two experimental groups and one control group. The research instruments were a demographic questionnaire, questionnaire of secondary post-traumatic stress, and questionnaire of depression, anxiety and stress. The interventions (Mindfulness-based cognitive therapy and acceptance commitment therapy) in the experimental group were 8 weeks and once a week, the control group did not receive any training.
2.2. Beck Depression Inventory

Beck Depression Inventory (BDI), for the first time in 1961 by Beck, Mendelson, Mock and Erbaugh developed (Azkhosh, 2009). In 1971, Beck and his colleagues at the Center for Cognitive Therapy, Philadelphia, and University of Pennsylvania presented a new version where the double negative sentences within the same symptoms had previously been removed. The final version was published in 1979. Revised form of the BDI was designed to determine the severity of depression in patients with psychiatric diagnosis. Sheer strengths obtained from the response of depressed patients, including the four categories. Grades 9-0 show the minimum depression. Score of 16-10 indicates mild depression. Mean depression scores of 29-17 and 63-30 scores indicating more severe depression (Beck, Rush, Shaw, Emery, 1979). Goldman, Metcalfe in 1965 in order to study the differential rates of depression among both healthy and depressed to the conclusion that the number 17, appropriate number to differentiate between these groups (Azkhosh, 2009). Overall, the Beck Depression Inventory as a test culture known and allocated to the item in question does not have a social environment and even for any economic class or not a certain degree, this simply indicates when he was diagnosed as depressed in this case (such as the fact that he is rich or poor, educated or uneducated, and so on) this test, however, reflects a deep depression on her own (Azkhosh, 2009). The questionnaire consisted of 21 questions, and feedback to measure depressive symptoms and provisions made primarily on the basis of observed and tabloid attitudes and depressive symptoms common among psychiatric patients have been developed. The questionnaire was completed in five to ten minutes; the participants should be on a scale of zero to three to four degrees to respond. The material in areas such as sadness, pessimism, sense of failure and defeat, guilt, sleep disturbances, loss of appetite, Autophobia and more. This means that two of the emotion, cognition, 11 female, 2 male to reveal behaviors, somatic symptoms, and 1 of Article 5 of the interpersonal dedicated to semiotics. Thus the scale varying degrees from mild to severe depression sets (Beck Vester and Garbin, 1988). Test-retest reliability of the test was 0.93. It is reported that this test is not very sensitive to changes daily. Cronbach's alpha for this scale α =0.91 has been reported to show high internal consistency it. Through the concurrent validity of the Hamilton Psychiatric Rating Scale for Depression (0.73), Zung Self-Rating Scale of Depression (0.76) and depression MMPI (0.76) has been reported (Azkhosh, 2009). Dobson and Mohammad Khani in Iran (2007) reported that 91% of its total validity. Qasemzadeh and colleagues (2005) alpha coefficient of the questionnaire (α=0. 78) the test-retest coefficient (0.73) and its correlation with the Beck Depression Inventory First Edition (R=0.93) reported. In the present study, the Cronbach's alpha reliability of the Beck Depression Inventory was 0.79.

2.3. Acceptance and Commitment Therapy

ACT for Post Traumatic Stress Disorder (PTSD) largely followed a manual authored by Eifert and Forsyth (2005). 3 Session 1 focused on psycho education, experiential exercises, and discussion of acceptance and valued action. Sessions 2 and 3 explored creative hopelessness or explored whether efforts to manage and control anxiety had “worked” and how such efforts had led to the reduction or elimination of valued life activities, 1 Given the mixed anxiety disorder sample and subsequently low n per disorder, intraclass correlation coefficients for individual disorders should be interpreted cautiously. 2 See author for a copy of the CBT treatment manual; the ACT manual is published (Eifert & Forsyth, 2005). 3 Creative hopelessness was moved from
Session 1 to Session 2, medi a tement for socia l Anxiety 667 and encouraged acceptance. Sessions 4 and 5 emphasized mindfulness, acceptance, and cognitive diffusion, or the process of experiencing anxiety related language (e.g., thoughts, self-talk) as part of the broader, ongoing stream of present experience rather than getting stuck in responding to its literal meaning. Sessions 6–11 continued to hone acceptance, mindfulness, and diffusion, and added values exploration and clarification with the goal of increasing willingness to pursue valued life activities. Behavioral exposures (e.g., interceptive, in vivo, imaginable) were employed to provide opportunities to practice mindfully observing and accepting anxiety, and to practice engaging in valued activities while experiencing anxiety. Session 12 reviewed what worked and how to continue moving forward. Mindfulness-based cognitive therapy (MBCT) is a synthesis of mindfulness-based stress reduction, mindfulness meditation, and traditional cognitive behavioral therapy. MBCT strategies help individuals recognize and understand the automatic patterns of sensation, cognition, behavior, and emotion which ultimately lead one to a depressive. Eventually, the individual would be able to recognize the onset of these patterns, and disrupt the automatic processes (feedback loops) thus, is believed, by modifying the neural circuits in their brain that are involved with emotion (e.g. amygdala, hippocampus (Siegel, 2007). Essentially MBCT is thought to alter the emotional/cognitive and physiological experiences of the present in order to treatment and prevent depressive relapse in the future (Segal et al, 2010). Research shows that such cognitive behavioral strategies may actually modify similar brain circuits which are targeted by medications (Figueira et al, 2009).

Fig 1: ACT model of psychopathology

3. Methods
After finalization of the research objectives and administrative arrangements, 36 women with post-traumatic stress disorder caused by the accident (20 to 50 years) were asked to Depression and anxiety Inventory, negative automatic thoughts and demographic respond. After the questionnaire, 25 of examinees in the Beck Depression Inventory total score is 63 points higher than that of 0 to 17 (of moderate to severe depression) gained. Participants in (MBCT) or ACT received 12 weekly, 1-hour, individual therapy sessions based on detailed treatment manuals. 2 ACT and MCBT were matched on number of sessions devoted to exposure but differed in framing of the intent of exposure. A subsample of therapy sessions were reviewed for independent assessment of therapist adherence and competency, and therapists adhered strongly to their assigned treatment approach (for further details, see Craske et al., 2014). Following the 12 sessions, therapists conducted follow-up booster phone calls (30, 45 mins) once per month for 3 months to reinforce progress consistent with the assigned therapy condition.

Table 1: mindfulness-based cognitive therapy (MBCT)

<table>
<thead>
<tr>
<th>1.1.1. Sessions</th>
<th>1.1.2. Content of training sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1.3. First</td>
<td>1.1.4. Review on structure and purposes of sessions and main rules</td>
</tr>
<tr>
<td>1.1.5. Second</td>
<td>1.1.6. Performing meditation practice including physical examination, presence of mind through breathing, explanation of relationship between thoughts and sensations</td>
</tr>
<tr>
<td>1.1.7. Third</td>
<td>1.1.8. Practicing the “seeing” or “hearing” techniques, obtaining feedback, sitting meditation along with creation of pain sensation;</td>
</tr>
<tr>
<td>1.1.9. Fourth</td>
<td>1.1.10. Practicing “seeing” or “hearing” techniques, sitting meditation for 30min.</td>
</tr>
<tr>
<td>1.1.11. Fifth</td>
<td>1.1.12. Practice of walking with presence of mind, revising the practice, examination of testees’ reactions</td>
</tr>
<tr>
<td>1.1.13. Sixth</td>
<td>1.1.14. Group discussion, practicing the breathing environment, physical meditation together with confronting the thoughts and breath control</td>
</tr>
<tr>
<td>1.1.15. Seventh</td>
<td>1.1.16. Presenting explanations about the relationship between activity and mood, practice of observing the relationship between activity and mood</td>
</tr>
<tr>
<td>1.1.17. Eighth</td>
<td>1.1.18. Presenting a protecting plan, practice of physical meditation</td>
</tr>
</tbody>
</table>

3.1. Statistical Analysis Methods
Analysis of raw data from the study by spss 22 software in two cross sections and inferential statistical procedures using ANOVA was performed.
Table 2: Demographic features of the patients suffering from post-traumatic stress disorder

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Groups</th>
<th>Experimental</th>
<th>Control</th>
<th>Chi-square test results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital status</td>
<td></td>
<td>No Per.</td>
<td>No Per.</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>8</td>
<td>6.7</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Married</td>
<td>28</td>
<td>93.8</td>
<td>33</td>
<td>90</td>
</tr>
<tr>
<td>Education level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary school</td>
<td>20</td>
<td>50</td>
<td>15</td>
<td>50</td>
</tr>
<tr>
<td>High school</td>
<td>10</td>
<td>30</td>
<td>10</td>
<td>33.3</td>
</tr>
<tr>
<td>University</td>
<td>6</td>
<td>20</td>
<td>5</td>
<td>16.7</td>
</tr>
</tbody>
</table>

Table 3: Analysis of variance in the pre-test, post-test and follow-up in both the experimental and control groups

<table>
<thead>
<tr>
<th>Variable Index</th>
<th>Squares</th>
<th>Degree of freedom</th>
<th>Mean Squares</th>
<th>F</th>
<th>Significant Level</th>
<th>Chi Eta</th>
<th>Statistical power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group test (Greenhouse geisser)</td>
<td>982/62</td>
<td>1</td>
<td>525/99</td>
<td>95/18</td>
<td>0/001</td>
<td>0/77</td>
<td>0/99</td>
</tr>
</tbody>
</table>

In the above table for the group and the control group to test, pre-test and post-test and follow-up is. Because of the interaction of two variables F (95.18) is with degrees of freedom (1) at p <0.05 meaningful. The interactive effects of two variables and test significant differences between experimental and control groups in mean show pre-test, post-test and follow-up and it becomes clear that the teaching of effectiveness of mindfulness-based cognitive therapy (MBST) and treatment based on acceptance and commitment therapy (ACT) in depression and anxiety symptoms in patients post-traumatic stress disorder caused by the accident is effective in the treatment group.
Table 4: The average and standard deviation of depression before treatment, after treatment and in a 2-month follow up.

<table>
<thead>
<tr>
<th>Group</th>
<th>Control (paired t-test)</th>
<th>Experimental (repeated measures ANOVA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean n  Sd  p value</td>
<td>Mean n  Sd  p value</td>
</tr>
<tr>
<td>Pre treatment</td>
<td>24.5  5.81  p&lt;0.00</td>
<td>27.2  6.41  p&lt;0.00</td>
</tr>
<tr>
<td>Post treatment</td>
<td>31.6  6.09  1</td>
<td>11.7  3.71  1</td>
</tr>
<tr>
<td>6 month follow up</td>
<td>6  8.5  2.52</td>
<td></td>
</tr>
</tbody>
</table>

4. Results
The average age of the participants was 50.97±8.25 years old and the age range was between 20 to 60 years old. Data analysis related to the patients’ was done by using chi-square test and there was no significant statistical difference between the two groups (p>0.05). Results of this study showed that there was no significant statistical difference between the two groups in terms of demographic features such as; gender, education level, marital status and occupation by using chi-square test and they were homogeneous. Comparing the average of depression level before and after intervention in two experimental and control groups indicated the effectiveness of mindfulness-based cognitive therapy (MBST) and treatment based on acceptance and commitment therapy (ACT) therapeutic method in decreasing depression of the patients in experimental group. One of the other findings of this study was that there was significant difference between the average of mental stress scores of the patients suffering from PTSD in the two groups mindfulness-based cognitive therapy (MBCT) and treatment based on acceptance and commitment therapy (ACT), (p<0.001). Results of this study showed that MBST method decreases depression level of the patients suffering from PTSD and the efficacy of this therapeutic method was permanent and PTSD patients did not suffer from recurrence of depression symptoms. Iroson et al. (2002) compared the efficacy of two MBST and long-term encountering methods in treatment of 22 patients suffering from PTSD. Results of their study showed that both therapeutic methods decrease PTSD and depression significantly and the results of the two methods were permanent in a three-month follow-up. But MBCT method was more successful and was better tolerated by the patients. Results of this study are in consistent with the present, the difference is that the study population of Iroson et al. was depression patients and the population of the present study was the patients with PTSD. Results of the study of Ishnaider et al. (1995) showed that MBST method causes significant improvement in hospital anxiety and depression variables, PTSD symptoms and seizures. Results of their study are in consistent with the present study and confirm it. one of the differences of their study with the present study is the number of MBST sessions, which was done in five intervention sessions in the study of Ishnaider et al., while there were three (MBST) sessions in the present study. In the
study of Van Derkoulk et al. (2007) regarding the comparison of the efficacy of MBCT, Sertraline and placebo therapeutic method in 88 patients suffering from PTSD, results of this study showed that (MBCT) therapeutic method decreased PTSD symptoms and depression symptoms of the patients significantly in compare with Sertraline drugs and these patients did not have depression symptoms in the six-month follow-up; these results are in consistent with the results of the present study and confirm it. One of the remarkable points in the study of Van Derkolk et al. is that (MBST) therapy is more effective than pharmacological therapy in treating depression. Therefore this method can be used as an effective method in treating depressed patients. In a study done by Hug Berg et al. (2008) about the results of (MBCT) method in treating PTSD, it was shown the results were permanent after a 35-month follow-up. They achieved that MBCT method decreases PTSD significantly and its results were permanent in 8 and 35-month follow-up, which is in consistent with the results of the present study. Therefore, considering that therapeutic effects of this method are permanent in a long time too, it is recommended to use this method for controlling and treating depression of other patients too. Results of the study of Arbia et al. (2011) showed that the level of depression before treatment in compare with after treatment was significantly decreased in the survivors of the patients suffering from cardiac events and were undergoing (PTSD) method; results of (MBCT) method was permanent in a six-month follow-up. Results of their study achieved that (MBCT) therapeutic method is effective in treating depression after life threatening cardiac problems; their results are in consistent with the results of the present study.

5. Conclusion

Two randomized controlled trials of ACT and mindfulness-based cognitive therapy (MBCT) for anxiety and depression offer clear evidence for the effectiveness of ACT. In one study conducted by Forman, Herbert, Moitra, Yeomans, & Geller (2007), one-hundred-and-one outpatients, who reported moderate to severe levels of anxiety or depression, were randomly assigned to receive either MBCT or ACT. Both groups showed large and equivalent improvements in depression, anxiety, functioning difficulties, quality of life, life satisfaction, and clinician-rated functioning at the end of treatment; however, the mechanisms of change seemed to be different between the two groups. Changes in “observing” and “describing” one’s experiences seemed to mediate outcomes for the MBCT group while “experiential avoidance,” “acting with awareness,” and “acceptance” mediated outcomes for the ACT group. The researchers concluded that in a naturalistic outpatient setting, using therapists in training without allegiance to a particular approach, ACT seems to be as effective as the gold-standard CBT treatment (MBCT). In another study, ACT was compared to CBT in 128 individuals with one or more DSM-IV (APA, 2000) anxiety disorders (Arch, et al., in press). Both CBT and ACT groups improved similarly across all outcomes from pre- to post-treatment. CBT resulted in higher quality of life, whereas ACT resulted in greater psychological flexibility and lower principal anxiety disorder severity for those who completed treatment. Because overall improvement was similar between ACT and CBT, the researchers concluded that ACT is a highly viable treatment for anxiety disorders. The underlying ACT model was developed out of intensive work with the problems inherent to anxiety disorders. Although the research base is small, preliminary data support the notion that the ACT model of anxiety may be appropriate for conceptualizing and subsequently treating these disorders. However, the successfulness of ACT rests on the outcomes of future research studies. In summary, the current study demonstrated that Mindfulness-Based Cognitive Therapy
has a significant effect on depression and on our samples. The depression changed in different ways. The outcomes are coherent with the results of the studies which emphasize the Effectiveness of MBCT for treatment of depression, anxiety and stress and to improve psychosocial adjustment of people. Baer argues that in mindfulness, several mechanisms can reduce the symptoms, including:

- Cognitive change
- improved self-management
- Exposure to painful experiences leading to reduced emotional reactivity.

Cognitive change also called metacognitive awareness is the development of a “distanced “or “decentered” perspective in which patients experience their thoughts and feelings as “mental events” rather than as true, accurate versions of reality. This is thought to introduce a “space” between perception and response that enables patients to have a reflective rather than a reflexive or reactive response to situations, which in turn reduces vulnerability to psychological processes that contribute to emotional suffering. Some preliminary evidence suggests that MBCT associated increases in metacognitive awareness reduce risk of depressive relapse.
References


