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Effectiveness of Acceptance and Commitment Therapy and Cognitive Therapy in Patients With Major Depressive Disorder

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Abstract

Background: Depression is one of the most prevalent psychiatric disorders that imposes a heavy economic, emotional and social burden on patients, families and society.
Objectives: The present study aimed to compare the effectiveness of acceptance and commitment therapy (ACT) and cognitive therapy (CT) in treating Iranian women patients with major depressive disorder (MDD).
Methods: Nineteen women outpatients meeting DSM-IV-TR criteria for MDD without any axis 2 disorders were randomly (goal-oriented and convenience sampling) assigned to one of two treatment conditions, i.e. ACT and CT. The intervention in acceptance and commitment therapy group that was conducted was based on the Zeattle manual for major depressive disorder. Twelve therapeutic sessions were administered in the consulting center of Tehran university twice a week. The control group received 12 sessions of cognitive therapy based on Ferry manual twice a week in the consulting center of Tehran university, too. The Beck depression inventory-II-second edition (BDI-II), acceptance and act questionnaire (AAQ-II) and dysfunctional attitude scale (DAS) were administered for pre-treatment, post-treatment and follow-up. The data was analyzed by repeated measures analysis of variance (ANOVA).
Results: ANCOVA results showed that there were significant differences between ACT and CT in dysfunctional attitude. The ACT group demonstrated significant improvement in acceptance in the pre-test and post-test stage. All the participants demonstrated significant improvement in depression.
Conclusions: As ACT improved depression and acceptance of internal experiences, it is recommended for depression as an effective psychotherapy.

Keywords: Acceptance and Commitment Therapy, Cognitive Therapy, Major Depressive Disorder

1. Background

Depression is one of the most prevalent psychiatric disorders that imposes a heavy economic, emotional and social burden on patients, families and society (1). Approximately 121 million people suffer from depression worldwide (2). Currently, depression ranks fourth among the 10 leading causes of global disorders costs, and it is predicted that it will be the second leading cause of financial burden globally by 2020 (3). Studies have also showed that prevalence of depression among Iranians is quite high (4-6). Concerning the high prevalence and negative consequences of depression, the effectiveness of different types of drugs and psychological interventions on depression has been investigated. During the past three decades, about 200 studies have compared the effectiveness of psychological interventions.

In controlled situations and other therapies (7), results have demonstrated the effectiveness of psychological interventions in the treatment of depression (7-9). One of the most common psychological interventions is cognitive behavioral therapy (CBT). The effectiveness of CBT has been confirmed in different studies (10). In some cases, CBT was considered as an alternative treatment for depression (11, 12). The theoretical basis of CBT in depression arises from the behavioral and cognitive theories of depression. In Beck and Alford's theory (13), which is the most important and well-arranged cognitive theory of depression, negative thoughts may cause depression in people. According to Beck, depression is characterized by individuals' negative views of self, world, environment, and future which form a cognitive triangle. It is hypothesized that if negative schemas become active, they would develop cognitive biases with the inclination to process information negatively, thus leading to low and reduced mood (14). In con-

clusion, it can be mentioned that Back's approach gives priority to negative beliefs and attitudes in reducing mood. The cognitive approaches try to treat depressed patients through changing the cognitive content of their thoughts. Although studies have shown that cognitive behavior therapy is the most effective psychological treatment for major depression (11, 12), this approach does not address the therapeutic needs of all patients. The outcome studies using Beck's depression inventory (BDI) have reported that only 40% - 58% of patients show improvement without any relapse at the end of the treatment (15, 16).

A newer subcategory of CBT, sometimes referred to as acceptance-based behavior therapies, has risen to eminence in recent years. Examples include mindfulness-based cognitive therapy (17), mindfulness-based stress reduction (18), acceptance-based behavior therapy for generalized anxiety disorder (19), dialectical behavior therapy (20) and acceptance and commitment therapy (21), among others. Of these therapies, ACT has received the most attention on the subject of empirical study (22) and scientific argument (23, 24).

At the level of technology, there are some important differences in how ACT and CT treat psychopathology (25). CT makes use of cognitive disputation and other forms of reappraisal (including behavioral experiments) designed to correct systematic biases in information processing, with the goal of reducing symptom intensity (26). The goal of ACT is not symptom reduction per se, but rather helping patients to accept difficult internal experiences (thoughts, images, emotions, sensations) in the service of engaging in values-consistent behavior change. ACT has demonstrated preliminary effectiveness across a range of problem behaviors, including mood (27) and anxiety (28) disorders, among others. In ACT, depression is conceptualized as a secondary emotion that arises from struggling to avoid normal and adaptive emotional reactions to distressing life events, for example, loss (29). Job loss is relevant to those on sick leave or unemployed as job loss increases depression (30). A meta-analysis (22) reported ACT to be superior to active treatments, including standard CBT. However, Ost (31) has criticized the rigors of the trials on which the meta-analysis relied, and a subsequent meta-analysis (32) concluded that ACT was equally effective as established treatments. The RCT upon which the study was based similarly detected no differences in efficacy between ACT and CT at post-treatment in the treatment of depression and anxiety (33).

The core difference between ACT and other acceptance-based interventions is the central proposition that diagnostically distinct clinical disorders may be established and maintained through common processes that are rooted in the capacity for language (34). These common processes include psychologically deleterious experiential avoidance (34). EA has been defined as an unwillingness to experience feelings, physiological sensations, and thoughts, especially those that are negatively evaluated (e.g., fear), as well as attempts to alter the form or frequency of these events and the contexts that occasion them (35). EA has been theorized to underlie a broad range of topographically dissimilar disorders, and has been a central feature of much ACT research, perhaps because the acceptance and action questionnaire (36) provides a readily available measure of the process. Ruiz (37) reported 20 studies have obtained 22 correlations between some version of AAQ and standard measure of depressive symptoms.

Bohlmeijer et al. (38) examined the efficacy of an early intervention based on ACT for depressive symptomatology.

Adults with mild to moderate depressive symptomatology were randomly assigned to the ACT intervention (n = 49) or to a waiting list (n = 44). The mean age of the participants was 49 years. All the participants completed measures before and after the intervention, and three months later at follow-up. The ACT intervention led to statistically significant reduction in depressive symptomatology (Cohen's d = 0.60) and significant reductions in anxiety and fatigue after intervention the three-month follow-up. Moreover, mediational analysis showed that the improvement of acceptance during the intervention mediated the effects of the intervention on depressive symptomatology at follow-up.

In another study, Folke et al. (39) investigated the feasibility of a brief ACT in a Swedish sample of unemployed individuals on long-term sick leave due to depression. Participants were randomized to a nonstandard zed control condition (n = 16) or to the ACT condition (n = 18) consisting of 1 individual and 5 group sessions. From pretreatment to 18-month follow-up, the ACT participants improved significantly on measures of depression, general health, and quality of life compared to participants in the control condition. The conditions did not differ regarding sick leave and employment status at any point in time.

In a randomized controlled effectiveness trial of ACT and CT for anxiety and depression, 101 heterogeneous outpatients reporting moderate to severe levels of anxiety or depression were randomly assigned to CT or to ACT (Forman et al. (33). Whereas improvements in depression, anxiety, functioning difficulties, quality of life, life satisfaction, and clinician-rated functioning were equivalent across the two groups, the mechanisms of action appeared to differ. Changes in observing and describing one's experiences appeared to mediate outcomes for the CT group, whereas experiential avoidance, acting with awareness and acceptance mediated outcomes for the ACT group.

As it seems that no study has yet been done to compare the effectiveness of this therapeutic approach with other approaches in major depressive disorder (MDD) patients in Iran, the current study investigated the effectiveness of ACT versus CT in the treatment of MDD, and we decided to examine its efficacy in an Iranian sample.

2. Objectives

The present study aimed to compare the effectiveness of acceptance and commitment therapy (ACT) and cognitive therapy (CT) in treating Iranian women patients with major depressive disorder (MDD).

3. Patients and Methods

This was a clinical trial study with two groups, i.e. two experimental groups. The subjects were assigned to the groups using simple randomization. All patients signed informed consent. The population included patients with moderate to severe MDD without psychotic features. Goal-oriented and convenience sampling were used for selecting participants among patients who had been referred to the counseling center of Tehran university in Tehran, Iran. Subjects of the first experimental group received acceptance and commitment therapy. The second group underwent cognitive therapy.

Pre-tests, post-tests and three-month follow-ups were done on all the study subjects. Assessments and treatments were administered in an outpatient setting by a PhD student clinical psychology. The study design can be shown as follows:

1, EG1 O_1 X^{**} O_2; 2, EG2 O_3 X^{*} O_4

EG1 and EG2 represent two experimental groups, respectively. O_1 and O_3 represent pre-tests of the two groups, and O_2 and O_4 denote post-tests of the groups. The X^{**} shows ACT, and X^{*} indicates CT. The subjects were diagnosed by a psychiatrist and a clinical psychologist through psychiatric as well as structured clinical interviews. The mixed repeated measures analysis of variance (ANOVA) was applied for data analysis using SPSS for Windows 19.0 (SPSS Inc, Chicago, IL, USA) by a statistician unfamiliar with the study groups.

3.1. Population and Sampling

The population included patients with MDD. Goal-Oriented and convenience sampling were used for selecting participants among patients who had been referred to the university outpatient clinics in Tehran, Iran. Subjects of the study comprised 19 people who had been referred to the aforementioned center. According to the Cohen tabulation, to determine the sample size with the level of significance of 2.5% and the power of 80%, and according to statistical tables, $z_{0.8}{}^{\circ} = 0.8416$ and $z_{0.975}{}^{\circ} = 1.96$, 10 patients are needed in each group.

They had the following inclusive criteria:

1, having diagnosis criteria for MDD according to the results of structured clinical interview for DSM-IV, Axis I, clinical version (SCID-I/CV) determined by a psychiatrist and a clinical psychologist; 2, receiving no psychological therapies during six months before participation in the study; 3, age between 18 - 35 years; 4, signing the informed consent for participating in the study.

The exclusive criteria were as follows:

1, having psychotic symptoms, drug abuse according to the results of the diagnostic interview and the results of the SCID-I/CV determined by the psychiatrist and psychologist and having serious suicidal thoughts, as these can negatively affect compliance; 2, having complete criteria of personality disorder at Axis II determined by the psychiatrist and clinical psychologist through the diagnostic interview and results of the SCID-II test.

3.2. Instruments

3.2.1. Structured Clinical Interview for DSM-IV Axis I Disorders SCID-I

Structured clinical interview for statistical manual of mental disorders, 4_{th} edition, (DSM-IV) Axis I disorders SCID-I (structured clinical interview for DSM-IV), clinical version (SCID-I/CV) is a comprehensive and standardized instrument for the assessment of major mental disorders in clinical and research settings (40). SCID-I is administered in a single session and takes about 45 to 90 minutes. Validity and reliability of this instrument have been confirmed in several studies (41). Zanarini et al. (42) have reported inter-rater diagnostic reliability with Kappa higher than 0.7 in most cases. The Persian version of this questionnaire has been provided by Sharifi et al. (43). Validity of the instrument has been confirmed by clinical psychologists, and its retest reliability was 0.95 for one week.

3.2.2. Structured Clinical Interview for DSMIV Axis II Disorders SCID-II

Similar to SCID-I, SCID-II is a structured diagnostic interview for personality disorder to assess 10 personality disorders at DSMIV Axis II, depressive and aggressive disorders, part of NOS (not otherwise specified), which were suggested by First et al. (44).

An investigation has been conducted with 284 subjects from four psychiatric centers and two non-psychiatric centers by two interviewers at two different times in order to

determine the test- retest reliability in a two-week interval and during two different times.

The Kappa coefficient was 0.24 for OCD, 0.74 for histrionic personality disorder and 0.53 for all psychiatric patients. The inter-rater agreement was low (Kappa = 0.38) among non-psychiatric patients (44). The content validity of the Persian version has been confirmed by some psychology professors, and its reliability was 0.87 through test-retest with a one-week interval (45).

3.2.3. Beck Depression Inventory, Second Edition

(BDI-II), the Beck depression inventory, second edition, is the revised Beck depression inventory (BDI), which was designed to assess the severity of depression in adolescents and adults (44). Compared to the first edition, the second edition of the Beck inventory is more compatible with DSM-IV. In fact, it covers all depression items based on the cognitive theory. Cronbach's alpha was 0.86 and internal consistency coefficient was 0.92 among Americans (46) and 0.91 and 0.94 among Iranians, respectively (47).

3.2.4. Dysfunctional Attitude Scale (DAS)

Dysfunctional attitude scale (DAS) is a commonly used self-report measurement of fundamental cognitive attitudes of Beck's theory for depressive symptoms. The scale has 40 items in two parallel forms that are rated on a 7-point Likert scale ranging from 1 (not true) to 7 (very true). The DAS has demonstrated satisfactory reliability ($\alpha = 0.85$) and validity in previous studies. One study evaluated DAS in Iranian subjects and confirmed its factor structure and showed that the DAS test-retest reliability and internal consistency for total score were 0.90 and 0.75, respectively, and the correlation between DAS and BDI-II was 0.65 (48).

3.2.5. Acceptance and Action Questionnaire-II (AAQ-II)

The AAQ-II (Hayes et al., submitted for publication) is a 10-item scale developed to assess the same construct as the original AAQ (36). AAQ-II is a short general measure of psychological acceptance or the readiness to experience unwanted private experiences, such as bodily sensations, emotions, thoughts and memories, in the pursuit of one's values and goals. It is sometimes referred to as a measure of psychological flexibility. Patients are asked to rate each statement on a scale from 1 (never true) to 7 (always true). Higher scores represent higher levels of general acceptance. The AAQ has been shown to have good validity and adequate internal consistency (36). Zargar (49) administered AAQ-II in the Iranian population. She administered this scale on 30 dormitory students of Tehran University of Medical Sciences. In this sample, the AAQ-II demonstrated adequate internal consistency ($\alpha = 0.86$).

All stages of this project including sampling, review literature, administration of two interventions and data analysis took from July 2012 to September 2013. The intervention in the ACT group was conducted based on the Zeattle manual for major depressive disorder. The content of ACT protocol included identifying experiential avoidances, cognitive defusion, acceptance, and mindfulness exercise and clarifying values.

The content of cognitive therapy based on the Ferry manual as the control group included relaxation, identifying automatic thoughts, downward arrow and providing cognitive map. Twelve therapeutic sessions were administered in the consulting center of Tehran university twice a week.

4. Results

Subjects of the study included 19 patients (10 patients in the ACT group, 9 patients in the CT group). All of the participants were female and were under pharmacological therapy. The mean and standard variation (SD) of the participants' age were calculated as 25.2 and 4.2, respectively. There were no significant differences between the two groups regarding age, education, and marital status.

Table 1 illustrates the mean and standard deviation (SD) of the control and experimental groups on the depression, dysfunctional thoughts, and acceptance of internal experiences in pretest, post- test, and follow-up sessions. The results indicated that the mean and SD of the groups on all scales were close to each other in the pretest.

Table 1. Mean and standard deviation of Beck Depression Inventory II Second Edition (BDI-II), Dysfunctional Attitude Scale (DAS) and Acceptance and Act Questionnaire (AAQ-II) in Pretest, Post-Test and Follow-Up[a]

Scale		Pretest	Post Test	Follow-Up
BDI-II				
	ACT	33.3 ± (11.25)	28.2 ± (16.28)	20.7 ± (17.55)
	CT	28.4 ± (7.74)	18.54 ± (7.65)	14.2 ± (7.82)
DAS				
	ACT	164.6 ± (25.26)	154.1 ± (29.33)	151.5 ± (25.11)
	CT	150.22 ± (27.93)	128.77 ± (9.84)	128.55 ± (15.46)
AAQ-II				
	ACT	37.4 ± (6.88)	42.3 ± (10.42)	44.8 ± (10.88)
	CT	39.6 ± (8.76)	40.5 ± (6.91)	38.8 ± (11.22)

[a]Values are expressed as mean ± SD.

According to Table 2, as well as the results of the post-hoc tests for paired comparisons with Bonferroni correction, there were no statistically significant differences in

depression scores between the groups in the pretest phase. In other words, this indicates the homogeneity of the groups in terms of depression scores.

The result of mixed repeated measures of ANOVA demonstrated a significant effect on phase ($F(2, 34) = 14.54$, $P = 0.00$, $\eta_2 = 0.9$). At post-test, however, no significant differences were observed in terms of depression scores between the experimental (ACT) and control group (CT) ($P > 0.05$). Similar results were noted at the follow-up stage. Across the pretest to follow-up stage, depression scores improved significantly in the ACT group; while depression enhanced across pre- to post-test and pretest to follow-up stage in the CT group.

According to Table 2, as well as the results of the post-hoc tests for paired comparisons with Bonferroni correction, there were no statistically significant differences in dysfunctional attitude scores between the groups in the pretest phase. In other words, this indicates the homogeneity of the groups in terms of dysfunctional attitude scores.

The result of mixed repeated measures of ANOVA demonstrated a significant effect on phase ($F(2, 34) = 6.26$, $P = 0.005$, $\eta_2 = 0.86$). At post-test, however, significant differences were observed in terms of dysfunctional attitude scores between the experimental (ACT) and control group (CT) ($P < 0.05$). Similar results were noted at the follow-up stage. Across the pre- to post-test and pretest to follow-up stage, dysfunctional attitude scores improved significantly in the CT group, while there were no statistically significant differences in dysfunctional attitude scores in the ACT group across the pre- to post-test and pretest to follow-up stage.

According to Table 2, as well as the results of the post-hoc tests for paired comparisons with Bonferroni correction, there were no statistically significant differences in acceptance of internal experience scores between the groups in the pretest phase. In other words, this indicates the homogeneity of the groups in terms of acceptance scores.

The result of mixed repeated measures of ANOVA demonstrated no significant effect on phase ($F(2, 34) = 1.6$, $P = 0.2$, $\eta_2 = 0.0.8$). At post-test, however, there were no significant differences in terms of acceptance of internal experience scores between the experimental (ACT) and control group (CT) ($P = 0.1$). Similar results were noted at the follow-up stage ($P = 0.3$). Across the pre- to post-test stage, acceptance scores improved significantly in the ACT group while there were no statistically significant differences in acceptance of internal experiences scores across the pre- to post-test and pretest to follow-up stage in the CT group.

5. Discussion

This study aimed to investigate and compare the effectiveness of acceptance and commitment therapy and cognitive therapies in treating patients with MDD. Results of the study were in accordance with the preceding studies (39) indicating that acceptance and commitment therapy was effective in reducing the severity of depressive symptoms.

The ACT approach to thoughts in general and negative thoughts in depression does not emphasize the content, form, or frequency of thoughts as problematic. Instead, how one relates to them (i.e., the function of thoughts) is highlighted. The tendency to behave in accordance with the content of thoughts is called cognitive fusion; it is via defusion and other processes that clients learn to hold thoughts more lightly and choose action based on values instead of the content of thoughts. Defusion was found to mediate outcomes in Zettle and Hayes' (27) and Zettle and Rains' (50) trials for depression. In addition, results of our study showed that cognitive therapy was effective in decreasing the severity of depression. Cognitive therapies improve depression through changing and modifying dysfunctional beliefs and cognitive biases. The aim of therapy is to identify and change dysfunctional thoughts and beliefs. In CT, the therapist confronts the negative emotions through reconstruction of client's thinking process in a way that logical thoughts replace dysfunctional ones (26).

In line with Forman et al. (33), the results of this study showed no statistically significant differences between these two approaches in improving symptoms of depression. It can be concluded that the fundamental differences between CT and ACT are philosophical and theoretical rather than technological (24).

The defining feature of CT is the assumption that therapeutic effects are mediated by changes in cognitions, including thoughts, beliefs and schemas and the corresponding emphasis on cognitive change efforts (33). In addition, the result of our study demonstrated that as we expected, CT decreased dysfunctional attitude significantly.

CT places emphasis on the content of thoughts as problematic, while ACT highlights the function of thoughts and behavior in accordance with the content of thoughts via defusion.

Therefore, the findings pointed to significant differences between the two approaches in the decrease of dysfunctional attitude, and the effect of ACT on DAS was not significant. Zettle et al. (51) reanalyzed the data of the two earliest clinical trials that compared 12 weeks of group CT with group ACT. They concluded that DAS did not mediate the outcomes and it could be viewed as a weak suppressor.

Table 2. Repeated Measures ANOVA and Bonferroni Pairwise Comparisons for ACT Group Means: Pre-Test, Post-Test and Three-Months Follow-Up

Scale	Pre-Test to Post-Test		Pre-Test to Follow-Up		Post-Test to Follow-Up	
	Mean Difference	P Value	Mean Difference	P Value	Mean Difference	P Value
BDI-II						
ACT	5.1	0.15	12.6	0.04	7.5	0.48
CT	9.8	0.02	14.2	0.007	4.3	0.29
DAS						
ACT	10.5	0.7	13.1	0.3	2.6	1
CT	21.44	0.04	21.66	0.05	0.22	1
AAQ-II						
ACT	-4.9	0.029	-7.4	0.075	-2.5	1
CT	-0.88	1	0.78	1	1.66	1

In line with Bohlmeijer et al. (38), another finding in our study showed that acceptance of internal experiences such as emotions and thoughts in the ACT group increased significantly compared to CT. They suggest that an early intervention based on ACT, aimed at increasing acceptance, is effective in reducing depressive symptomatology.

Rector (52) says that the goal of ACT is not changing cognitions or symptoms, as in CBT, but learning to become mindful and accepting of cognitions and symptoms, and pursuing valued behavior. Also, while there was a mean increase in acceptance of internal experiences in cognitive therapy, this difference did not reach statistical significance. As CT tries to modify and control thinking errors by using cognitive strategies such as identification of automatic negative thoughts and cognitive biases, acceptance of negative thoughts has not increased significantly. On the other hand, because CT is capable of improving dysfunctional attitude through exploration contradictory evidences and acceptance of internal experiences, the results of this study showed no statistically significant differences between these two approaches in improving acceptance of emotions and thinking.

Although there are indeed important differences along each of these dimensions, there is also a great deal of overlap. Comparisons of the models typically highlight distinctions, and common grounds can be obscured. Ultimately, both CT and ACT aim to reduce human suffering and are committed to a scientific epistemology (24).

One of the main limitations of this study was the fact that the same therapist administrated both ACT and CT, which may have biased the results. It is, therefore, recommended that in future studies, different therapists conduct the therapeutic interventions. Regarding small sample size of this study, using only women students of Tehran university, we recommend that investigators conduct similar studies with a larger sample size and clinical population including both sexes to extend generalization.

Footnotes

Authors' Contribution: Shima Tamannaei Far designed the study, collected the data, and drafted the manuscript. Mojtaba Habibi participated in designing the study, analyzing the data, and writing the manuscript. Banafsheh Gharraee reevaluated the clinical data and revised the manuscript. All the authors read and approved the final manuscript.

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