Original Article

Comparing the Effectiveness of Acceptance and Commitment Therapy (ACT), Drug Therapy, and the Combination of These Two Methods in the Treatment of Major Depression

Alireza Mirghiasi[1*], Kourosh Namdari[2], Saeed Samandari[3], Nematollah Mortazi[4]

1. MD. Psychiatrist, Department of Psychiatry, Modarres Hospital, Isfahan University of Medical Sciences, Iran
2. PhD. Faculty of Educational Science and Psychology, Department of Psychology, University of Isfahan, Iran
3. MD. Geriatric Psychiatrist; Department of Psychiatry, Isfahan university of Medical Sciences, Iran
4. MSc. Psychologist, department of psychology, Modarres hospital, Isfahan University of Medical Sciences, Iran
*(*Corresponding author:* Alireza Mirghiasi, Email: *alimirghiasi@yahoo.com)*

(Received:20 Jan 2019; Revised: 13 Feb 2019; Accepted: 19 Feb 2019)

Abstract

Introduction: A large number of people are afflicted with major depressive disorder, leading to high societal costs. In addition, the treatment remains one of the most challenging and controversial issues in mental health. The main purpose of this study is to compare the effectiveness of acceptance and commitment therapy (ACT), pharmacotherapy, and a blend of the two methods in treating major depressive disorder.

Methods: A sample of 60 subjects was selected randomly from the middle-aged patients suffering from major depressive disorder (based on DSM-V criteria) with illness duration of one year that referred to all outpatient clinics of the Modares hospital in Isfahan. The patients were divided into four experimental groups including: acceptance and commitment therapy (ACT), Drug Therapy, blend of the two aforementioned methods and control group. Statistical analysis was conducted using analysis of covariance.

Results: Findings showed a significant difference in terms of depression among the three treatment groups. While the mean scores of depression in the posttest were 44.60 for the control group, the results for pharmacotherapy, ACT and combination group were 17.66, 26.53 and 15.13 respectively ($p<0.05$).

Discussion: Although, Pharmacotherapy and combined treatment are more effective than ACT alone, the combination of ACT and pharmacotherapy is the most effective with longer-lasting results in the treatment of adults with major depressive disorder in middle-aged Iranian patients.

Declaration of Interest: None.

Key words: Major depressive disorder, Acceptance and commitment therapy, Drug therapy.

Introduction

Every year, a large number of people are diagnosed with major depressive disorder, resulting to high societal costs (1). Major depressive disorder, mild or severe, causes severe and at times irreversible damage to an individual's life (2). As estimated by the World Health Organization (WHO), by 2020, depression will be the second human threatening diseases, after cardiovascular diseases in the world (3). Depression, alcoholism, bipolar disorder, schizophrenia, and obsessive-compulsive disorders rank among the first 10 diseases interfering functional living among individuals (4). Indeed, focusing on the identification and treatment of psychiatric disorders can play a significant role in decreasing the incidence and

prevalence of suicide, psychological and societal problems (4). Also, 15% to 20% of adults are suffering from considerable symptoms of depression. Depression remains a controversial issue in mental health such that extensive research continues to focus on it (5).
Different approaches are available for the treatment of depression. Treatments of depressive disorder can fall into the two broad categories of medication and psychological therapies. Both types have demonstrated to be effective in numerous studies (6). In severe cases, the use of antidepressants is reported to be the best choice (6). These medications have grown substantially in terms of both quality and quantity, such that, today, they no longer have severe and debilitating side effects. Notwithstanding the clear efficacy of medication therapies in treating major depressive disorder, many patients fail to respond to this type of therapy, and, after they stop taking medication, their symptoms persist, with patients demonstrating signs of relapse (6). Meanwhile, empirical research on the use of acceptance and commitment therapy (ACT) in treating depression has been scarce (7). New treatments in the field of behavior therapy are known as the third wave behavioral therapy. Such treatments began to be implemented in the early 1990s with the growth of innovative treatments that rely on the principles of mindfulness and emphasized awareness and acceptance of the present moment (8). ACT ,However has some limitations. For instance, ACT is smaller and less methodologically treatment in comparing with other non-pharmacological methods, even some researchers claim that ACT may not offer anything new as a behavioral therapy. Furthermore, the therapists usually exclude depressive patients with psychotic symptoms, drug abuse, serious suicidal thoughts and sever personality disorder from participating in the sessions as these can negatively affect compliance; in addition, we know there aren't enough experts in this field of treatment as well (5,7).
Third wave therapies can be divided into two categories: (A) interventions based on mindfulness training (e.g., mindfulness-based stress reduction and cognitive therapy) and (B) interventions that use mindfulness as a key component (e.g., therapies based on acceptance and commitment) (9). ACT can treat many clinical demonstrations and symptoms of depression. The main ACT processes seek to teach patients how to stop inhibiting their thoughts, how to break away from annoying thoughts, and how to increase their tolerance of undesirable Emotions. Few studies have been conducted focusing on middle age adults to examine the effectiveness of ACT on patients who suffering from major depressive disorder in Iranian population. Also, middle age adults usually are awareness about their life values and there are similar challenges and stressors, which potentially could be the risk factors of depression in this group (5, 7, 8, 10).
Considering the above discussion, the main objective of the present study is to compare the effectiveness of ACT, pharmacotherapy, and a blend of the two methods in treating middle-aged patients suffering from major depressive disorder registered in the outpatient clinics of Shahid Modares Psychiatric Hospital, Isfahan, Iran.

Methods

This study adopted a quasi-experimental method using a pretest-posttest design with a control group. Using simple random sampling (random sampling and assignment), a sample of 60 subjects were selected from the middle-aged patients (45–65 years old) suffering from major depressive disorder (based on DSM-V criteria) with illness duration of one year registered in all outpatient clinics of Shahid Modares Psychiatric Hospital. Patients suffering from debilitating physical diseases, such as epilepsy, or psychological diseases (except major depressive disorder), such as patients with psychotic symptoms, drug abuse, serious suicidal thoughts and sever personality disorder, severe mental retardation, dementia, and brain tumor, were excluded from the study. The patients participated in the study voluntarily and gave their informed consent in writing. The patients were divided into four groups. The following is the study's procedure for intervention in the experiment groups.

Experiment group 1: This group underwent ACT within ten, 120-minute sessions in ten weeks. The summary of the sessions is described Table 1. In the beginning sessions, the procedure and goals of the study were explained to the participants. The training and training discussions started in the fourth session. In the following sessions, the participants' progress were assessed by giving practice to them.

Table1. Summary of acceptance and commitment therapy sessions

Sessions	Summary
First session	Communicating and introducing the group's rules, objectives and introducing the training course, obtaining commitment from the members of the group to attend the meetings, administering pre-test, conceptualization and description of various symptoms of depression: Cognitive, Behavioral, Physical and Emotional Symptoms, Discussing about strategies for controlling and avoiding a variety of symptoms.
Second session	Introducing psychological stressors in a living environment, Law of the inner world and outer World, Clean Pain and Dirty Pain, "The Unwelcome Party Guest" metaphor for depression and its symptoms, and presenting acceptance assignment.
Third session	Familiarity of subjects with hidden aspects of language that can cause blending, Breaking confidence in the reality of internal events. Creating a distinction between thought and thinker as well as between emotion and feeler.
Fourth session	Practicing and reviewing previous sessions, administering tendency and acceptance training (the seat)
Fifth session	Introducing conceptualized self, self as context versus self as content, difference between knowledge and cognition, the chessboard metaphor, the self as observer practice
Sixth session	The concepts of overcome past and conceptualized future, Familiarity with being in the present moment, the driving metaphor for being in the present moment, Introducing Mindfulness, , Body Scanning through Mindfulness, presenting "contact with present moment" practice.
Seventh session	Obtaining feedback from the previous six sessions, "self as context" and "being in the present moment" practices
Eighth session	Moving toward a valuable life with self-accepting and Self as observer, identifying values of the subjects, measuring the values, the subjects were asked to prioritize the values
Ninth session	Specifying objectives, investigating possible barriers to management, introducing tendency in a new approach (selection), presenting assignments
Tenth session	Reviewing assignments and practices on values and committed action, reviewing previous sessions, Summing up

Experiment group 2: This group received pharmacotherapy for two months. Within the two-month period, the participants were administered antidepressants (SSTIs and TCAs). With the aim of alleviating the symptoms, patients with acute depression were visited on a daily basis and received high doses of medicine, which was gradually reduced. The patients then underwent maintenance treatment to prevent relapses. Experiment group 3: This group received a blend of the two aforementioned methods for two months. Fifteen randomly selected patients underwent ACT, weekly follow-ups, and pharmacotherapy under the supervision of a board-certified psychiatrist. Group 4 (control

group): The pretest was administered and no intervention was performed. In the final session, a posttest was administered to the group. The training package of ACT had been prepared for 10 sessions.

The Beck Depression Inventory (2nd edition) (BDI-II) was administered to the patients before and after the treatment. The BDI-II is a relevant psychometric instrument, which is valid, reliable and appropriate instrument for screening and measuring the severity of depression (11). It can be used for clinical and research purposes with broad applicability for research and clinical practice in Iran and worldwide (12, 13). The data were analyzed using SPSS 20 in the analysis of covariance method, and the results were presented as descriptive and inferential statistics. To investigate the hypotheses, the quasi-experimental design was applied. Statistical analysis was conducted using analysis of covariance.

Results

The results demonstrated that all the three treatment methods, namely, ACT, pharmacotherapy, and a combination of the two, could alleviate the symptoms depression in middle-aged patients.

As presented in Table 2, the mean scores of depression for the four groups in the pretest and posttest, respectively, are 41.67 and 44.60 for the control group, 44.33 and 17.66 for the pharmacotherapy group, 40.86 and 26.53 for the ACT group, and 42.73 and 15.13 for the combination group. Analysis of covariance was conducted using the pretest control scores to analyze the results.

Table 2: Mean and standard deviation of depression scores of control and experiment groups in pretest and posttest

Variable	Group	Pretest		Posttest	
		Mean	Standard Deviation	Mean	Standard Deviation
Depression	Control	41.67	4.95	44.6	4.43
	Pharmacotherapy	43.33	4.71	17.66	3.41
	ACT	40.86	6.68	26.53	3.96
	Pharmacotherapy and ACT	42.73	3.84	15.13	4.12

The Kolmogorov–Smirnov statistic is at p>05. Thus, the assumption of normality of data is confirmed. As the *P* value in the Levene's test is higher than 0.05, the assumption of homogeneity of variance is confirmed as well. Subsequently, analysis of variance was conducted by controlling for the pretest scores. According to the results in Table 3, the pretest scores are significantly related to the posttest scores, albeit with a controlled relationship. In addition, there is a significant difference in terms of depression between the control and ACT groups ($p<0.05$). The Eta squared value of 0.88 indicated an 88% difference between the control and ACT groups in terms of depression with regard to ACT. The test showed a power of 99% in detecting differences between the ACT and control groups with regard to depression treatment. The first research hypothesis, namely, that ACT reduces the symptoms of major depressive disorder in middle-aged patients, is confirmed. After confirming the normality of data, analysis of covariance was conducted by controlling for the pretest. The results are displayed in Table 3.

Table 3: Results of analysis of co-variance

	Source of variation	Sum of squares	Degree of freedom	Mean of squares	F coefficient	Significance	Eta squared	Test power
effectiveness of ACT in treating depression	Pretest	361.79	1	361.79	37.14	0.001	0.46	0.99
	Group membership	3098.92	1	3098.92	318.11	0.001	0.88	0.99
	Error	300.91	27	11.15				
the effectiveness of Pharmacotherapy and ACT in treating depression	Pretest	57.29	1	57.29	3.39	0.07	0.12	0.42
	Group membership	6563.35	1	6563.35	388.57	0.001	0.93	0.99
	Error	456.05	27	16.89				
Comparing the effectiveness of the three treatment methods in treating	Pretest	10.06	1	10.06	0.67	0.42	0.02	0.13
	Group membership	1076.51	1	538.25	37.13	0.001	0.93	0.99
	Error	456.05	27	16.89				

According to the results in Table 3, there is a significant difference in terms of depression between the control and combination groups ($p<0.05$). The Eta squared value of 0.93 indicated a 93% difference between the control and combination groups in depression with regard to the combined treatment. Further, the results indicated that the analysis of covariance had a 99% power to detect the difference between the control and combination groups with regard to depression. Thus, the third hypothesis, namely, that the combined treatment (pharmacotherapy together with ACT) is more effective in alleviating the symptoms of major depressive disorder and middle-aged patients, is confirmed. After confirming the normality of data, analysis of covariance was conducted by controlling for the pretest. There is no significant relationship between the pretest and posttest scores. Demonstrate a significant difference in terms of depression between the three treatment groups ($p<0.05$). The pairs of mean scores in the three treatment groups obtained from cognitive therapy and ACT sessions were investigated. Both groups demonstrated significant decreases in depression symptoms in the posttest and follow-up sessions.

With reference to KS test and Levene's test outcome (0.01, 1.026) and (1.27, 0.29), the result is not significant at $p<0.05$. Therefore, the assumption of normality of data is confirmed. In Levene's test, if P is higher than 0.05, the assumption of homogeneity of variance is generally accepted. As such, the assumption of homogeneity of variance in depression is confirmed.

Conclusions

The present study showed that ACT techniques could efficiently target depression symptoms. Considering the statistical results presented, there is a significant difference between the control and experiment groups in terms of posttest mean scores. Therefore, it can be concluded that ACT has alleviated the symptoms of major depressive disorder in middle-aged patients, consistent with the results of other studies (9,10). These patients draw a negative interpretation of their encounter with negative moods, people, and external situations, and attempt to control (eliminate or escape from) depression and gain temporary peace, which could lead to prolonged and aggravated depression (experiential avoidance). In the therapy, the patients were taught (using the hole metaphor)

that their main problem in the first place is their behavior in controlling (eliminating or escaping from) depression. The patients' experiential avoidance is converted into acceptance using the beggar metaphor. Detachment and acceptance techniques reduce the pain and discomfort caused by depression (14, 15). The mindfulness technique helps the patients identify the depression symptoms and monitor them in the present moment without any judgment (14). Meanwhile, encouraging the patients to identify their aims and values, as well as the necessity of expressing the values and moving toward them, helps them purposefully to change their behaviors. The treatment likewise helps to achieve such results as increased life expectancy, adaptation with disease conditions, better relationships with others, and reduced problems related to depression, however, we had to exclude Patients suffering from debilitating physical diseases, such as epilepsy, or psychological diseases, such as patients with psychotic symptoms, drug abuse, serious suicidal thoughts, sever personality disorder, mental retardation and dementia from the groups (8, 16).

The findings also demonstrated a significant difference between the mean score of depression in the combined treatment group (pharmacotherapy and ACT) and that in other groups. This difference suggests that the combination of pharmacotherapy and psychotherapy is the most effective treatment for major depressive disorder, and is consistent with similar findings with regard to the combined use of pharmacotherapy and psychological interventions.

The possible explanation for these findings could be the assertion that pharmacotherapy could improve the patients' mood and, afterward, help them participate more enthusiastically in group ACT therapies. The patients learn to increase the quality of their behavior in tackling depression by detachment. As contact with the present moment is crucial in ACT, the patients gain a sense of changeability, and, using their contact with the here and now, alleviate avoidances and conflicts. Subsequently, the patients are encouraged to observe depression symptoms in the present moment the way they experience them deep inside without any judgment. Since ACT considers involvement with the conceptualized self as a threat to mental flexibility and health, connection with other types of self-experience such as self as a background where inner events such as thoughts, feelings, memories, and bodily feelings occur. A high sense of self exists in humans and is realized through detachment and mindfulness. The merit of this sense of self is that it is a background where the content of thought in depression is no longer threatening. In other words, as background, the self supports acceptance. In this approach, by clarifying and identifying individuals' values, the values are converted into goals, and the goals into specific behaviors, thereby enabling individuals to become committed toward their goals (19,20, 21).

According to the results of pair analyses, it can be concluded that ACT, pharmacotherapy, and the combination of the two methods have been effective in treating depression. Previous research has offered evidence with respect to the effectiveness of pharmacotherapy in treating depression. The Psychiatric Treatment Guidelines prefer pharmacotherapy to cognitive therapies in treating medium to severe depressions (American Psychosocial Association, 2013). However, evidence shows that the positive effects of psychotherapy, contrary to those of pharmacotherapy, remain years after the end of treatment (17,18, 22).

The findings of the present study demonstrated no significant difference in the mean scores of depression between the ACT and pharmacotherapy groups. For explaining this phenomenon, could argue that both pharmacotherapy and psychotherapy engender the necessary efficiency for treating depression, and highlighted that more than the type of therapy is the therapist's skill in the optimal implementation of the aforementioned therapies. Consistent with the present results, many researchers have indicated a significant relationship between these two therapies in treating depression. Some studies have demonstrated that the two treatment methods, namely, cognitive therapy and pharmacotherapy, are equally effective in

treating major depressive disorder (6, 10). Although the speed of treatment in pharmacotherapy is higher than that in cognitive therapy treatment, the follow-up of treatment results demonstrates that cognitive therapy treatments, owing to their positive effects, have longer-lasting results than pharmacotherapy. Hence, the present study emphasizes the combined role of environmental factors in major depressive disorder, and proposes active cooperation between psychologists and psychiatrists in treating major depressive disorder (17,18, 22, 23).

Acknowledgment

We would like to thank our colleagues, including the psychiatrists, psychologists, and nurses at Shahid Modares Psychiatric Hospital in Isfahan, and the patients who helped us kindly in this project. We have endeavored to consider all ethical issues in this study.

Conflict of interest statement

The authors declare no conflict of interest.

References:

1. Greenberg PE, Stiglin LE, Finkelstein SN, Berndt ER. Depression: a neglected major illness. J Clin Psychiatry. 1993 Nov; 54(11):419-24.
2. Fennell MJ. Depression, low self-esteem and mindfulness. Behav Res Ther. 2004 Sep; 42(9):1053-67.
3. Reddy MS. Depression: The Disorder and the Burden. Indian J Psychol Med. 2010 Jan-Jun; 32(1): 1–2.
4. Peters EM, Balbuena L, Marwaha S, Baetz M, Bowen R. Mood instability and impulsivity as trait predictors of suicidal thoughts. Psychol Psychotherapy. 2016 Dec; 89(4):435-444.
5. Fiske A, Wetherell JL, Gatz M. Depression in Older Adults. Annu Rev Clin Psychol. 2009; 5: 363–389.
6. Gaudiano BA, Herbert JD. Methodological issues in clinical trials of antidepressant medications: perspectives from psychotherapy outcome research. Psychother Psychosom. 2005; 74(1):17-25.
7. Losada A, Marquez-Gonzalez M, Romero-Moreno R, Mausbach BT, Lopez J, Fernandez-Fernandez V, Nogales-Gonzalez C.J Cognitive-behavioral therapy (CBT) versus acceptance and commitment therapy (ACT) for dementia family caregivers with significant depressive symptoms: Results of a randomized clinical trial. Consult Clin Psychol. 2015 Aug; 83(4):760-72.
8. Hunot V, Moore TH, Caldwell DM, Furukawa TA, Davies P, Jones H, Honyashiki M, Chen P, Lewis G, Churchill R. 'Third wave' cognitive and behavioural therapies versus other psychological therapies for depression. Cochrane Database Syst Rev. 2013 Oct 18; 10.
9. Hayes SC. Acceptance & Commitment Therapy: Relational Frame Theory, and the Third Wave of Behavioral and Cognitive Therapies. Behavior Therapy; 2004. 35:639-665.
10. Zettle, RD. Acceptance and Commitment Therapy (ACT) vs. Systematic Desensitization in Treatment of Mathematics Anxiety. The Psychological Record: 2003 Vol. 53: Iss. 2, Article 3.
11. Taheri tanjani P., Garmaroudi G., Azadbakht M., Fekrizadeh Z., hamidi R., Fathizadeh S, Gheisvandi E. Validity and reliability Beck Depression Inventory-II among the Iranian elderly Population, Journal of Sabzevar University of medical sciences, , 2015, 22(1):189-198
12. Ghassemzadeh H, Mojtabai R, Karamghadiri N, Ebrahimkhani N. Psychometric properties of a Persian-language version of the Beck Depression Inventory-Second edition: BDI-II-PERSIAN. Depress Anxiety. 2005; 21:185-92.
13. Wang, Y.-P., & Gorenstein, C. (2013). Psychometric properties of the Beck Depression Inventory-II: A comprehensive review. Br J Psychiatry, *35*(4), 416-431.
14. Cacioppo JT, Tassinary LG, Berntson G. Handbook of psychophysiology. New York: Cambridge University Press. (2016).
15. de Jonghe F, Hendricksen M, van Aalst G, Kool S, Peen V, Van R, van den Eijnden E, Dekker J.Psychotherapy alone and combined with pharmacotherapy in the treatment of depression. Br J Psychiatry 2004; 185:37-45.
16. Bach P, Hayes SC. The use of acceptance and commitment therapy to prevent the rehospitalization of psychotic patients. Journal of Consulting and Clinical Psychology, 2002 Vol v. (5), 1129-1139.
17. Hollon SD, Shelton RC, Davis DD. Cognitive therapy of depression: conceptual issues and

clinical efficacy. J Consul Clin Psychol 1993: 61:270-275.
18. Hayes SC, Bissett RT, Kom Z, Zettle RD, Rosenfarb IS, Cooper LD. The impact of acceptance versus control rationales - on pain tolerance. The Psychological Record; (1999). 49:33-47.
19. Jam AK, Cooper CL. Stress and organizational citizenship behaviors in Indian business process outsourcing organizations. IMB Manage Rev; (2012). 24(3):155-63.
20. Kath LM, Stichier JF, Ehrhart MG. Moderators of the negative outcomes of nurse manager stress. J nursing admin. (2012). 42(4):215-21.
21. Roemer L, Orsillo SM. An acceptance- based behavior therapy for generalized anxiety disorder. In S.M, Orsillo &, L, Roemer (Eds). Acceptance and mindfulness- based approaches to Anxiety. Conceptualization and treatment. New York: Springer, (2005), 213-240.
22. Koksal F, Power KG, Four Systems Anxiety Questionnaire (FSAQ): a self-report measure of somatic, cognitive, behavioral and feeling components. J Pers Assess. 1990 Summer;54(3-4): 534-545.
23. Fava GA, Ruini C, Rafanelli C, Finos L, Conti 5, Grandi S. Six-year outcome of cognitive behavior therapy for prevention of recurrent depression. Am J Psychiatry. 2004 Oct;161(10): 1872-6.