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Original Article

Comparison of the efficacy of acceptance and commitment group therapy (ACT) with mindfulness-based cognitive therapy (MBCT) on hemodialysis patients in terms of anxiety and depression

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Abstract

Introduction: This study compared the efficacy of Acceptance and Commitment Group Therapy (ACT) with Mindfulness-Based Cognitive Therapy (MBCT) on hemodialysis patients in terms of anxiety and depression.

Materials and Methods: In this experimental study, among the hemodialysis patients referred to Imam Khomeini in Shirvan and Imam Ali hospital in Bojnord, 42 hemodialysis patients were selected by convenient sampling method and they were randomly divided in three groups of ACT, MBCT and control (each group 14 people). ACT and MBCT groups were treated for 8 sessions of 90 minutes (one weekly session). In this study, Beck anxiety and depression inventories were used to collect data. Data was analyzed using analysis of covariance.

Results: The findings showed that both treatment methods were efficient on anxiety and depression in hemodialysis patients but the efficacy of ACT on the depression variable is greater than MBCT and efficiency of MBCT on anxiety variable is greater than the ACT.

Conclusion: It seems that Acceptance and Commitment Group Therapy (ACT) and Mindfulness-Based Cognitive Therapy (MBCT) are effective on hemodialysis patients in terms of anxiety and depression.

Keywords: Acceptance and commitment therapy, Anxiety, Depression, Mindfulness-based cognitive therapy

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Introduction

Chronic Renal Failure (CRF) refers to advanced and irreversible kidney failure, usually progressive (1). Available treatment methods for patients with chronic kidney failure include hemodialysis, peritoneal dialysis, and kidney transplantation (2). By the end of 2013, the population of chronic kidney patients with End Stage Renal Disease (ESRD) in Iran reached about 53 thousand people, of which 25,934 were undergoing hemodialysis treatment (3). In addition to facing many physiological changes, these patients also face many psychological tensions, each of which can cause disturbances in

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their psyche and personality, so most are not adapted to the problems and tensions. Moreover, they suffer from mental disorders and behavioral changes such as anxiety, depression, isolation, denial of illness, delusions, and hallucinations, so psychological intervention is necessary as a fundamental element in treating these patients (4). Depression is one of chronic kidney failure patients' most common mental disorders (5). The prevalence of depression between 50 and 80% and anxiety between 20 and 60% in domestic hemodialysis patients has been reported (6). In 2000, Kimmel and his colleagues concluded that there is a significant relationship between the severity of depression and the mortality of dialysis patients (7). In 1995, this research showed that a group of dialysis patients who scored higher on Beck's anxiety and depression test suffered more complications during treatment. In addition, the unfavorable quality of life and psychological problems were identified. It may even lead to the withdrawal of dialysis patients from treatment (8). According to the results of Nazemian et al.'s study, 5.64% of patients suffer from depression, 4.51% suffer from overt anxiety, and 49.7% suffer from hidden anxiety (9). Salehi considers 50% of dialysis patients depressed, of which 3.3% have mild depression, 15% have moderate depression, and 1.7% have severe depression. Most studies emphasize that dialysis patients' most common symptom of mental illness is depression, followed by anxiety (10). Coker et al. reported that the rate of anxiety disorders in end-stage kidney disease patients is more than twice the general average rate of 7.45%. Despite the advancement of technology in the treatment of hemodialysis patients, stressful factors still threaten this group (11). From 1990 onwards, with the beginning of the third wave of cognitive behavioral therapy, the tendency towards new treatment protocols based on cognitive therapy increased. Among these, Mindfulness-Based Cognitive Therapy (MBCT) and Acceptance Commitment Therapy (ACT) are suggested treatments for the prevention of anxiety and depression, and emotional regulation. In these treatments, it is believed that cognitions and emotions should be considered in the conceptual context of phenomena. For this reason, instead of approaches such as cognitive behavioral therapy that corrects dysfunctional cognitions and beliefs to correct emotions and behaviors, where the patient is taught to accept his emotions in the first step and live in " the "here and now" to enjoy more psychological flexibility. For this reason, traditional cognitive behavioral techniques are combined with mindfulness in these treatments (12). ACT has shown its effectiveness in many psychological problems, such as reducing the pain experience in women with chronic headaches (13), reducing symptoms of distress, anxiety, and depression in patients with chronic pain (14), improving pain, depression, and anxiety caused by pain in people with chronic pain (15), acceptance of pain and reduction of pain-related anxiety (16), reduction of anxiety and depression in obese women (17) and reduction of depression in type 2 diabetic patients (18). The results of Rajabi and Yazdakhashi's research under the title of the effectiveness of acceptance and commitment group therapy on anxiety and depression of women with MS showed that in the post-test stage, the anxiety and depression scores of the experimental group were significantly reduced compared to the control group (19). Wells and McCracken's study showed that participants in ACT treatment scored lower in pain intensity, depression, and pain-related anxiety (20). The results of research conducted about the effectiveness of cognitive therapy based on mindfulness in reducing the symptoms of depression and anxiety have shown that in people suffering from depression and anxiety, MBCT has led to the improvement of depression, and reducing the symptoms of anxiety plays a role and the studies conducted in Iran also confirm the mentioned findings (21-38). As mentioned, various researches have shown the effectiveness of two treatment models based on acceptance and commitment and cognitive therapy based on mindfulness in people suffering from depression and anxiety. Therefore, the present study aims to compare the effectiveness of these two types of treatment on anxiety and depression in hemodialysis patients.

Materials and Methods

The research population includes all male and female hemodialysis patients referred to the dialysis department of Imam Khomeini (RA) Shirvan and Imam Ali (AS) Hospitals in Bojnourd. According to the report, the total number of patients was 101.The criteria for entering the

research include age between 14 and 70 years, history of hemodialysis for more than six months, not receiving any other psychological treatment at the time of the research and at least one month has passed since the previous treatment, willingness to receive intervention and continue the plan after explanations.

In addition, they must have information about the time, place, and type of meetings. They must not have a history of nervous and mental illness and no history of hospitalization due to nervous and mental illnesses, stressful events such as divorce, death of close relatives, loss of job in the past six months, and no experience of a major stressful event. By using the convenient sampling method, 42 patients who met the criteria to enter the research and were willing to participate in training sessions were selected and randomly assigned to two test groups, ACT, MBCT, and a control group (14 people in each group). Before entering the study, the purpose of the project was explained, and personal consent was obtained from them to participate in the study. First, all three groups answered the questions of Beck's anxiety and depression questionnaire (pre-test).

Then, the ACT experimental group underwent commitment and accepted treatment for eight sessions of 90 minutes (one session per week), and the experimental group MBCT underwent cognitive therapy based on mindfulness for eight sessions of 90 minutes (one session per week) after the last session of all three groups, a post-test was performed.

Research instruments

A) Beck Depression Inventory: It is a self-report tool used to measure the severity of depression, it contains 21 items, and each item gets a score between 0 and 3. Its retest reliability coefficient in Iran is 0.73, and it is the alpha coefficient. Its Cronbach is reported as 0.90. Beck's anxiety questionnaire is also a 21-question self-assessment scale that measures anxiety. The reliability of this scale in Iran has been reported as 0.70 by Bakhshai (28), and its internal consistency has been obtained as 0.92 and its retest reliability as 0.75 by Beck and Clark (39). The reliability of Beck's depression and anxiety questionnaire for the present study was calculated according to Cronbach's alpha coefficient of 0.79 and 0.90, respectively. SPSS version 21 software was used for data processing. In the descriptive statistics section, using frequency statistics, the mean and standard deviation of the subjects' demographic characteristics and anxiety and depression scores were introduced. In the inferential statistics section, the research hypotheses were examined separately using covariance analysis.

Results

The descriptive findings of the research showed that 47.6% of the participants were male, and 4.52% were female. While in the MBCT group, 42.9% of the participants were men, and 1.57% were women, this ratio was the same (50%) in the ACT and control groups. In addition, the average age of the participants is 47.14.

The standard deviation is 13.13. Most of the participants in all three groups were married, had primary education, lived in the city, and had their own house, and most were not addicted to drugs and cigarettes. Also, the most common cause of kidney failure in all three groups was diabetes (33.3%), and blood pressure was the second most important (28.6%).

Table 1. Description of gender and age of the participants

Gender					Age (Year)	
Group	Male		Female		Mean	SD
	Frequency	Percent	Frequency	Percent		
MBCT	6	42.9	8	57.1	42.64	10.46
ACT	7	50	7	50	50.14	15.07
Control	7	50	7	50	48.64	13.16
Total	20	47.6	22	52.4	47.14	13.13

Table 2. Descriptive variables of the research

Group	Variable	Stage	Mean of scores	SD	Percentage changes
MBCT	Anxiety	Pre-test	8.53	5.2	-5.89
		Post-test	2.64	3.93	
	Depression	Pre-test	22.69	14.84	-13.77
		Post-test	8.92	4.37	
ACT	Anxiety	Pre-test	11.61	9.74	-9.33
		Post-test	2.28	3.26	
	Depression	Pre-test	24.07	11.68	-13.84
		Post-test	10.23	4.78	
Control	Anxiety	Pre-test	10.85	7.69	2.15
		Post-test	13.00	6.83	
	Depression	Pre-test	17.42	9.85	1.35
		Post-test	17.42	9.20	

The results show that the level of anxiety after implementing cognitive therapy intervention based on mindfulness decreased by 5.89 points and after implementing the intervention based on commitment and acceptance by 9.33 points, while in the control group, the level of anxiety in the post-test was 15. It has increased by 2 points. Also, the level of depression decreased after implementing both cognitive therapy interventions based on mindfulness and intervention based on commitment and acceptance (almost 13.77 vs. 13.84 scores), while in the control group, the level of depression was 35. 1 score increased in the post-test. Before testing the hypotheses of the research, the presuppositions of covariance analysis were checked, and then the results related to the hypotheses were presented. The significance level of the statistic calculated for the normality of the distribution of anxiety and depression scores in the pre-test and post-test stages is more significant than 0.05, so the assumption of the normality of the distribution of the scores of both variables is accepted. Also, the result of Lon's test for homogeneity of variances showed that the statistical value obtained for both variables is not significant at the 95% confidence level, which shows the homogeneity of variances of both variables in the two groups.

So this assumption is also valid. The results of the homogeneity test of the regression slope showed that the assumption of homogeneity of the regression coefficients is valid for both variables.

Table 3. Covariance analysis of the effectiveness of MBCT and ACT on hemodialysis patients' anxiety

Variable	Stage	Normality test (Kolmogorov-Smirnov)		Equality test Error variance (Levene)	
		Statistics	P	Statistics	P
Anxiety	Pre-test	0.089	0.200	1.409	0.257
	Post-test	0.237	0.056	1.261	0.209
Depression	Pre-test	0.063	0.318	0.515	0.601
	Post-test	0.152	0.068	2.103	0.136

As can be seen in Table 3, it can be said that there is a statistically significant difference between the post-test scores of anxiety among the treatment group based on commitment and acceptance, cognitive therapy based on mindfulness, and the control group. The results of the follow-up test also confirm this conclusion. The Tables 4-6 indicate the results of regresson, covariance analysis. The positive difference between the mean scores of the MBCT and ACT groups in the follow-up Bonferroni test indicates that the scores of the MBCT group are higher than those of the ACT group after the therapeutic intervention. As a result, the MBCT intervention is more effective than ACT in reducing anxiety in hemodialysis patients. Also, there is a statistically significant difference between the depression post-test scores among the therapy group based

on commitment and acceptance, cognitive therapy based on mindfulness, and the control group. The results of the follow-up test also confirm this conclusion. The negative difference between the mean scores of the MBCT and ACT groups indicates that the post-test depression scores of the MBCT group compared to the ACT group after therapeutic intervention. As a result, the ACT intervention is more effective than MBCT in reducing depression in hemodialysis patients.

Therefore, it can be claimed with 95% confidence that there is a statistically significant difference between the effectiveness of acceptance and commitment therapy (ACT) and mindfulness-based cognitive therapy (MBCT) on anxiety and depression in hemodialysis patients.

Table 4. Results of homogeneity test for regression slope

Variable	Source changes	Sum of squares	df	Mean Square	F	P
Anxiety	The effect of group	16.539	1	16.539	2.867	0.541
Depression	The effect of group	97.688	1	97.688	2.096	0.452

Table 5. Covariance analysis of the effectiveness of MBCT and ACT on anxiety in hemodialysis patients

Variable	Sum of squares	df	Mean squares	F	P	Eta coefficient
Pre-test	539.279	1	539.279	54.802	0.000	0.841
The effect of group	1034.692	2	517.346	52.573	0.000	0.832
Error	354.260	36	9.841			

Table 6. Covariance analysis of the effectiveness of MBCT and ACT on depression in hemodialysis patients

Variable	Sum of squares	df	Mean squares	F	P	Eta coefficient
Pre-test	832.641	1	832.641	37.905	0.000	0.893
The effect of group	971.366	2	485.683	22.110	0.000	0.831
Error	790.787	36	21.966			

Discussion

The present study was conducted to compare the effectiveness of two treatment methods based on acceptance and commitment (ACT) and cognitive therapy based on mindfulness (MBCT) on anxiety and depression of hemodialysis patients. The research findings showed that compared to the control group, both treatment methods significantly influenced the anxiety and depression of hemodialysis patients. However, the effectiveness of ACT on the depression variable was more than MBCT, and the effectiveness of MBCT on the anxiety variable was more than ACT.

From the examples of consistent results, we can refer to Marandi, Yousefi, and Khosravi's research: the results of the research showed that the two treatment groups, ACT and MBCT, had a significant effect on the depression and anxiety of PTSD patients after the accident, but the effectiveness of MBCT in reducing anxiety was greater. It was from ACT. This is even though the effect of both treatments on reducing depression was the same (40). Forman et al.'s study represent one of the first comparisons of the long-term effect of traditional cognitive behavioral therapy and acceptance and commitment therapy. According to the findings, both treatments were equally effective on depression, anxiety, general, occupational and social performance, and quality of life. However, the results show that treatment gains were better maintained at follow-up in CBT treatment (41).

In explaining the effect of cognitive therapy based on mindfulness in reducing the symptoms of depression, it can be said: In this method, depressed patients are taught to observe their thoughts and feelings without judgment and See simple mental events that come and go instead of seeing them as a part of themselves or a reflection of reality. This kind of attitude towards cognitions related to depression prevents the intensification of negative thoughts in the pattern of rumination. (27)

Mindfulness-based cognitive therapy (MBCT) combines aspects of cognitive therapy with meditation techniques and aims to teach anxious patients to control their attention so that they can identify their mood changes and prevent relapses. Also, in the mindfulness-based cognitive therapy program, patients learn to divert their attention from ineffective thoughts and feelings and instead pay more attention to their bodies and the nature around them (42).

Abdul Qadri and his colleagues' research showed that MBCT and CBT were effective in reducing depression and anxiety in patients with chronic back pain compared to the control group. However, a significant difference was observed between the effectiveness of MBCT and CBT in depression and anxiety (33). In another study, the effectiveness of ACT and CBT in anxiety disorders were compared. Both groups showed similar improvement (43).

In general, ACT therapists encourage clients to recognize, reduce struggles with psychological content and create a position of greater acceptance to move in a helpful direction (44). The research results of Biglen, Hayes, and Pisterlow in examining ACT applications have shown that interventions that reduce experiential avoidance and help people recognize and commit to pursuing valuable goals are beneficial in improving various life problems. 45). For example, in applying ACT for anxiety disorders, a dialysis patient learns to stop fighting his anxiety by engaging in activities closer to his chosen life goals (values). Exercise your control. Instead of teaching more and better strategies to change or reduce unwanted thoughts and feelings, ACT teaches patients to acquire skills to be aware of and observe unpleasant thoughts and feelings as they are (46).

Therefore, it can be concluded that therapeutic methods such as therapy are based on acceptance and commitment, and mindfulness due to the mechanisms hidden in it, such as acceptance, increasing awareness, being present in the moment, observing without judgment, and refraining from experiential avoidance. Combined with cognitive behavioral therapy techniques, it can increase the effectiveness of treatments, increase psychological flexibility, create mindfulness-based thinking in acceptance and commitment therapy, and teach coping skills in mind-based cognitive therapy. Furthermore, awareness can strengthen hemodialysis patients in facing dangerous situations and significantly reduce the level of anxiety by being aware of the surrounding events.

Conclusion

Considering the effectiveness of both approaches in reducing anxiety and depression in hemodialysis patients, they can be implemented as effective psychological interventions in dialysis departments. Teaching the principles of these two treatment approaches can also be included in training workshops or in-service training for nurses working in hemodialysis departments or even other chronic patient care departments.

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