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The effectiveness of acceptance and commitment therapy based on depression, mental health and physically health in hemodialysis patients

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Abstract

Introduction: The present study aims to investigate the effectiveness of acceptance and commitment therapy based on improving depression, mental health and the physically health in hemodialysis patients. An experimental pretest-posttest whit a control group design was used to conduct the study.

Materials and Methods: The statistical population of the interventional study includes all hemodialysis patients who have referred to the dialysis unit of Bu-Ali hospital in Ardabil in the second half of 2015. The sample the study includes 60 individuals, who were selected by convenience sampling and randomly were assigned to two experimental and control groups. Beck Depression Inventory and SF-36 quality of life was completed by participants before the intervention. Than the experimental group received eight 90 minutes sessions of based on Acceptance and Commitment Group Therapy, and the patient in the control group received other training in eight sessions of 90 minutes to control the placebo effect. Statistical methods used for data analysis is multivariate analysis of variance (MANOVA).

Results: The results indicate the significant impact of Acceptance and Commitment Therapy based on the effectiveness of depression and enhanced, mental health and the physically health in experimental group is also significant ($P < 0.05$).

Conclusion: According to the study, the acceptance and commitment therapy based significantly improves depression, mental health and the physically health in hemodialysis patients.

Keywords: Acceptance and commitment therapy, Depression, Hemodialysis, Mental health, Physically health

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Introduction

Chronic kidney disease (CKD) is defined as kidney damage or gradual decline in kidney

function for 3 months or more, which is associated with reduced quality of life, increased health care costs, and premature death. If left

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untreated, chronic renal failure leads to end-stage renal disease, which is a progressive and irreversible impairment of kidney function. Diabetes is the first and most common cause of chronic kidney failure. The second most common cause of CKD is increased blood pressure following inflammation of the glomerulus and kidney and bacterial infection of the kidney, polycystic kidney and kidney cancer or heredity (1). One of the most effective treatments for controlling the symptoms of end-stage renal disease is dialysis (2). Hemodialysis is the most common dialysis method. The purpose of hemodialysis is to extract toxic nitrogenous substances from the blood and remove excess water from the body (3). Hemodialysis does not cure kidney disease and does not compensate for the loss of endocrine and metabolic activities of the kidney, but it saves the patient's life. Hemodialysis has many side effects. Common side effects during hemodialysis include low blood pressure, muscle spasms, chest pain, back pain, anemia, and fatigue (3). In addition to facing numerous physiological changes, these patients also face many psychological tensions, each of which in turn can cause disturbances in their psyche and personality, so that most of them do not adapt to the problems and tensions, and undergo changes. Behaviors such as anxiety, depression, isolation, denial of illness. These problems lead to a decrease in the quality of life of patients (4). According to the definition of the World Health Organization, health is a state of complete physical, mental, and social well-being and does not refer only to the absence of disease or disability (5).

The concept of mental health includes an inner feeling of well-being and self-efficacy, self-reliance, competitive capacity, intergenerational dependence, and self-fulfillment of potential intellectual and emotional abilities, etc. Of course, considering the differences between cultures, it is impossible to provide a comprehensive definition of mental health. However, there is a consensus that mental health is more than just a mental disorder. A person who has mental health can deal with problems rationally while feeling satisfied with life. In other words, a person with mental health is able to adapt to the environment while gaining individuality (6). Physical health means the

ability to enjoy good health, which includes health, nutrition and housing (7).

Depression is the most common psychological complication of hemodialysis patients (8). In the fifth diagnostic and statistical manual of mental disorders, depression is the presence of sadness, feeling of emptiness or irritable mood accompanied by cognitive and physical changes that significantly affect the functional capacity of a person in a negative way (9). Depression is the fourth cause of disability in the world, the most common mental disorders in chronic kidney failure patients. The importance of identifying and investigating this disorder is to the point that if depression is not identified and treated, the person will suffer from eating disorder, weak immune system, non-compliance with the treatment regimen, the severity of the disease will increase and finally, he may commit suicide (10). Depression is one of the important factors in reducing adherence to treatment. Non-participation of depressed patients in treatment increases their medical problems and endangers their health and eventually causes their premature death. In addition, in these patients, many areas of quality of life have shown a significant correlation with mental health. Decreasing mental health in hemodialysis patients affects their quality of life and causes dysfunction in various dimensions (11).

The treatment that was used in this research is Acceptance and Commitment Therapy (ACT). Acceptance-based therapies are known as third-wave cognitive-behavioral therapies, and in them, instead of changing cognitions, communication is attempted. A person's psychology increases with his thoughts and feelings (12). Acceptance and Commitment Therapy is one of the most common types of these treatments. Hayes defines ACT as follows: a contextual therapeutic approach, based on relational framework theory, which considers human psychological problems mainly as psychological inflexibility that is Cognitive burnout and experiential avoidance have been created. In the context of a therapeutic relationship, ACT uses direct dependencies and indirect verbal processes to experientially work primarily through acceptance, fusion, creating a meta-experiential sense of self, connection with the present moment, values. And making very

good patterns of committed actions related to these values will create more psychological flexibility in the individual.

ACT uses acceptance and mindfulness processes, commitment, and behavior change processes to build psychological flexibility. The desired outcome in ACT is not symptom reduction (although symptoms are likely and usually reduced). The desired result is an increase in psychological flexibility; In other words, it is an opportunity for clients to maintain or change their behavior in order to achieve valuable goals and outcomes (13). Acceptance and commitment therapy is one of the interventions based on acceptance, which is very effective for people who have experienced unwanted psychological events such as pain. Acceptance and commitment therapy is one of the subsets of the cognitive behavioral therapy approach, which is based on the principle that avoiding pain leads to disability and reduced quality of life. According to this theory, avoidance occurs when thoughts and feelings logically has an inappropriate and extreme effect on behavior and in the treatment process, exposure to avoided situations is considered as a core intervention, unlike many treatments that focus on reducing or controlling disease symptoms or increasing the level of acceptance of negative reactions that directly change are not acceptable (thoughts and physical feelings), they emphasize more in order to improve the level of activity (14). Therefore, the research aims to answer the question, is the treatment based on acceptance and commitment effective in reducing depression and improving self-care of hemodialysis patients?

Materials and Methods

According to its goals and hypotheses, the present research method is an intervention with a pre-test-post-test plan with a control group.

The statistical population of this research was all the hemodialysis people of Ardabil city in the second half of 2014 who visited Bu Ali Hospital and their approximate number was 250.

The sampling method of this research was available. In this way, among the hemodialysis patients in Ardabil city, 60 people were selected based on the study entry criteria. Also, this number was randomly assigned to two experimental and control groups. First,

considering that at least 15 samples have been taken into account in the experimental research (15). 30 people were selected for both groups due to increasing the external validity and generalizability of the results.

Research instruments

A) Beck Depression Questionnaire Version 2: This questionnaire as a valid and reliable tool, includes 21 questions, 15 questions with emotional symptoms and 6 questions with physical symptoms, and each question contains 4 options and its score value from 0-3 and the total score of the test is between 0-63. The Beck depression questionnaire is widely used in chronic kidney failure patients and has validity and reliability. In the study of Heshmatifar et al., the reliability of the instrument was calculated with Cronbach's alpha of 0.85. (16).

B) Quality of Life Questionnaire: This questionnaire is a dedicated tool for examining the quality of life of patients and includes two general and specific scales related to quality of life. The general scale of quality of life itself includes two subscales of physical conditions and emotional conditions. The physical subscale also includes the four areas of general health (including 6 items), physical performance (including 10 items), physical role performance (including 4 items) and physical pain (including 3 items). and the subscale of emotional conditions also includes three areas of playing an emotional role (including 3 items), social functioning (including 2 items) and mental health (including 8 items). The specific dimension of the research tool consists of nine areas, including limitations related to kidney disease (including 11 items), psychological problems related to health (including 6 items), physical performance related to health (including 12 items), and general health-related condition (including 3 items).), family satisfaction related to health (includes 4 items), sleep status (includes 4 items), occupational status related to health (includes 3 items), sexual issues (includes 2 items) and the level of satisfaction with care and ward personnel (includes 3 items) subject) in hemodialysis patients. According to the weight of the items, which is different in each area, each section is assigned from 0 to 100 points. Higher scores in this questionnaire indicate higher quality of life.

This questionnaire is a multi-dimensional, valid and reliable tool that includes all dimensions of the questionnaire and has high degrees of similarity and internal correlation (2). Validity and validity of this questionnaire were evaluated for the first time in Iran by Montazeri, Ghstasbi, Vahidinia on 4163 people aged 15 years and above, most of whom were married. The reliability coefficient in eight dimensions was 0.77 to 0.95, except for the head of life, it was 0.65. The validity coefficient was obtained from 0.58 to 0.95.

The factor analysis test also obtained the main component, which justified 65.9% of the dispersion between the scales of the questionnaire. In total, the findings showed that the Iranian version of this questionnaire, with high validity and reliability, is a suitable tool for measuring the quality of life among the general population (17).

C) Treatment and educational program: The treatment method used in this research was treatment based on acceptance and commitment. In this treatment method, instead of changing cognitions, the psychological connection of the person with his thoughts and feelings is increased. In the present study, this therapeutic intervention was used based on Valves and Sorel's therapeutic protocol. Also, in order to confirm psychologically, the content of the treatment package is completely standard and has been approved in clinical psychology societies and institutes (18).

The treatment method used in this research was the treatment based on acceptance and commitment. The treatment course was applied to the experimental group in the form of 8 sessions of 90 minutes. Two sessions per week based on the ACT treatment protocol are suitable for depression, quality of life and self. The structure of therapy sessions based on acceptance and commitment will be as follows:

The first session: familiarizing the group with each other and establishing a therapeutic relationship, introducing people to the subject of the research, examining the disease of chronic kidney failure in each person in the group, including the duration of the disease and the measures taken, overall assessment and assessment of control methods, creating creative helplessness, and answering questionnaires.

The second session: Examining the inside and outside world in ACT therapy, creating a desire to leave the ineffective program of change and understanding that control is the problem, not a solution, and introducing an alternative to control, that is, desire.

The third session: Identifying people's values; declaration of values; Statement of goals, statement of actions and statement of obstacles.

The fourth session: Examining the values of each person and deepening the previous concepts.

The fifth session: understanding fusion and breaking and performing exercises for breaking.

The sixth session: Understanding self-conceptualized fusion and teaching how to break away from it. Seventh session: Mindfulness and emphasis on being in the present.

Eighth session: study of life story and committed action. In order to collect information in this research, after making the necessary arrangements and obtaining an introduction letter, visiting Bo Ali Hospital in Ardabil, and after selecting a statistical sample of 60 hemodialysis patients (30 in the test group, 30 in the control group), the research objectives for They were explained. In the first session, a pre-test was conducted for both groups and research questionnaires (Beck's depression and quality of life questionnaire) were provided to both groups. Then the intervention was applied to the experimental group. The duration of treatment sessions for the experimental group was 8 sessions of 90 minutes. The control group was also subjected to a different training program that is not related to the dependent variables. After the intervention, the post-test was performed for both groups, and Beck's depression and quality of life questionnaires were given to the patients. Finally, the prepared questionnaires were collected and the obtained data were analyzed with SPSS software.

Data analysis is first descriptive, which includes mean, standard deviation, etc. Also, inferential statistical methods, multivariate analysis of variance (MANOVA) have been used in order to compare the studied variables in the control and test groups, and all the hypotheses were determined to have a significant level in this research.

Results

Table 1. The mean and standard deviation of depression in the studied groups

Variable	Group	Time	Mean	Standard deviation	T	Degrees of freedom	P
Depression	Control	Pretest	63.8000	4.45978	1.17	58	0.085
		Posttest	62.4667	4.39226			
	Experimental	Pretest	63.4667	9.89508	11.880	58	0.000
		Posttest	3.1333	7.03554			

According to the significant level of the test error, it can be said that there is no significant difference between the pre-test and post-test scores of the control group in the depression

variable ($P < 0.05$). This is while there is a significant difference between the pre-test and post-test scores of the test group in the depression variable ($P < 0.01$).

Table 2. Mean and standard deviation of physical health and mental health

Variable	Group	Time	Mean	Standard deviation	T	Degrees of freedom	P
Physically health	Control	Pretest	57.7333	3.77773	1.227	58	225
		Posttest	56.2667	5.34940			
	Experimental	Pretest	56.6000	4.79655	-3.392	58	0.000
		Posttest	66.4000	4.23125			
Mental health	Control	Pretest	43.6000	3.46012	-0.503	58	0.617
		Posttest	44.0000	2.65226			
	Experimental	Pretest	43.7333	2.66437	-7.169	58	0.000
		Posttest	50.1333	4.09990			

Considering the significant level of the test error, it can be said that there is no significant difference between the pre-test and post-test scores of the control group regarding physical health and mental health ($P < 0.05$). Meanwhile, there is a significant difference between the pre-test and post-test scores of the test group in the

depression variable ($P < 0.01$). As can be seen in Table 3, the significance level of the error of the test of equality of variances ($P < 0.05$) shows that the variances are equal.

As can be seen in Table 4, the significance level of the error of the equality of variances test ($P < 0.05$) shows that the variances are equal.

Table 3. The results of Levin's test for depression in hemodialysis patients

	Test title	value	F	df hypothesis	df error	P	Eta Square
Model	Pillai's trace	0.0998	15209.402	3.000	114.000	0.000	0.998
	Wilks lambda test	0.002	15209.402	3.000	114.000	0.000	0.998
	Hotelling's trace	400.247	15209.402	3.000	114.000	0.000	0.998
	The largest root of error	400.247	15209.402	3.000	114.000	0.000	0.998
Group	Pillai's trace	0.583	53.110	3.000	114.000	0.000	0.583
	Wilks lambda test	0.417	53.110	3.000	114.000	0.000	0.583
	Hotelling's trace	1.398	53.110	3.000	114.000	0.000	0.583
	The largest root of error	1.398	53.110	3.000	114.000	0.000	0.583

Table 4. Levene test results for physical and mental health in hemodialysis patients

	Test title	value	F	df hypothesis	df error	P	Eta Square
Model	Pillai's trace	0.0997	22140.777	2.000	115.000	0.000	0.997
	Wilks' lambda test	0.003	22140.777	2.000	115.000	0.000	0.997
	Hotelling's trace	385.057	22140.777	2.000	115.000	0.000	0.997
	The largest root of error	385.057	22140.777	2.000	115.000	0.000	0.997
Group	Pillai's trace	0.386	36.201	2.000	115.000	0.000	0.386
	Wilks' lambda test	0.614	36.201	2.000	115.000	0.000	0.386
	Hotelling's trace	0.630	36.201	2.000	115.000	0.000	0.386
	The largest root of error	0.630	36.201	2.000	115.000	0.000	0.386

Table 5. Results of significance test of multivariate variance analysis of physical and mental health

	Dependent variable	Sum of squares	Degrees of freedom	Mean of squares	F	P	Eta
Model	Depression	17371.240	1	17371.240	2154.127	0.000	0.957
Group	Depression	29652.840	1	29652.840	3452.689	0.000	0.973
Error	Depression	17292.250	1	17292.250	1050.562	0.000	0.916

As Table 5 shows, the significance levels of all tests allow the use of multivariate analysis of variance. These results show that there is a significant difference in at least one of the dependent variables in the studied groups. ($P > 0.01$, $F = 2.36$, Wilks' lambda = 0.61). The eta square shows that the difference between the

groups with regard to the dependent variables is significant in total, and the amount of this difference is 0.38 based on Wilks's lambda test, that is, 38% of the variance related to the difference between the groups is due to the mutual influence of the dependent variables.

Table 6. The results of the multivariate variance analysis test on the physical and mental health variables

	Dependent variable	Sum of squares	Degrees of freedom	Mean of squares	F	P	Eta
Model	Physically health	421267.500	1	421267.500	20108.786	0.000	0.994
	Mental health	296476.133	1	246976.133	23020.060	0.000	0.995
Group	Physically health	952.033	1	952.033	45.444	0.000	0.281
	Mental health	270.000	1	270.000	251.166	0.000	0.178
Error	Physically health	2430.133	116	20.949		0.000	
	Mental health	1244.533	116	10.729		0.000	

As Table 6 shows, there is a significant difference between the average physical and mental health of the experimental group before and after the test ($P < 0.01$). Therefore, treatment

based on acceptance and commitment has a positive effect on increasing mental and physical health in hemodialysis patients.

Discussion

The results of the research conducted in the field of treatment based on acceptance and commitment show that this treatment method improves physical health in hemodialysis patients life (19,18), reduction of pain catastrophizing (20), is consistent.

Physical health means the ability to enjoy good health, which includes health, nutrition and housing. People who have physical and mental health feel happier, and those who are happier are less prone to illness and death than depressed people (7). The main theoretical construct in the acceptance of behavioral therapies, such as acceptance and commitment therapy, is psychological flexibility, which means the ability to perform effective actions in line with individual values despite the presence of pain (14). Treatment based on acceptance and commitment has improved the mental health of hemodialysis patients. The results of the studies showed that the treatment based on acceptance and commitment has reduced depression and social anxiety (12,21,22), which is in line with the present results.

Mental health is a state of mind that is related to a number of internal and external variables, which can include the absence of illness to the feeling of satisfaction and enjoyment of life. In this way, satisfied people experience more positive emotions and have a more positive evaluation of the events around them, have a higher sense of restraint and control, and experience more progress and satisfaction with life. They have a healthier immune system and higher creativity. Compared to depressed people, they face less illness and death due to it (23). In therapy based on acceptance and commitment, an important factor in creating and maintaining psychological damage is experiential avoidance, which means exaggerated negative evaluation of internal experiences (thoughts, feelings, and emotions) and unwillingness to experience them, which leads to trying to control or escape from them. The goal of treatment based on acceptance and commitment is to reduce experiential avoidance and increase psychological flexibility through acceptance of unpleasant, unavoidable and disturbing feelings such as anxiety, cultivating mindfulness in order to neutralize excessive involvement with Cognitions and

identification of personal values are related to behavioral goals, and the patient is encouraged to relate to his experiences fully and without resistance while moving toward his valued goals, and to accept them without judgment of correctness. and accept their inaccuracy when it appears. This will improve the quality of life, especially in the psychological field (18).

According to the obtained results, treatment based on acceptance and commitment reduces depression in hemodialysis patients. These results are in line with the results obtained from research (12,21,24-27) in reducing depression.

Depression is one of the most common and important psychiatric disorders in hemodialysis patients.

Depression is a disorder characterized by decreased energy and interest, feelings of guilt, problems in concentration, anorexia, and thoughts of death and suicide, and with changes in the level of activity, ability It is associated with cognitive, speech, and other biological rhythms. This disease is the cause of many physical discomforts, which include fatigue, lack of sleep, decreased libido, diarrhea and constipation (28).

In therapy based on acceptance and commitment, the goal is to increase psychological flexibility and to increase the client's ability to connect with their experience in the present and based on what is possible for them at that moment, to act in a way that is consistent with the values of choice. In this treatment, behavioral commitment exercises along with the techniques of failure and acceptance, as well as discussions about values, all led to a reduction in the severity of depression in patients.

Help them to experience their disturbing thoughts as just a thought and become aware of the dysfunctional nature of their current program and instead of responding to it, do what is important to them in life and in line with their values (21).

According to the obtained results, the following suggestions are presented:

Considering the extent and prevalence of hemodialysis disease and the costs it imposes on patients, it is suggested to hold training workshops and educational programs to provide proper information about this disorder and ways to deal with it.

Conclusion

It is suggested that specialists, psychiatrists and psychologists involved with hemodialysis

patients should include the predictive factors of treatment based on acceptance and commitment in their therapeutic and counseling interventions.

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