

The Effectiveness of Acceptance and Commitment Therapy on psychological Well-being in Diabetes Patients

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Abstract

Introduction: One of the most common chronic diseases is diabetes. Diabetes is a heterogeneous group of diseases of the metabolism that is characterized by chronic hyperglycemia and impaired metabolism of carbohydrates, fats, and proteins and is caused as a result of defects in insulin secretion or insulin functioning. The purpose of this study was to investigate the effectiveness of Commitment and acceptance therapy on psychological well-being in Diabetes patients.

Methods: In this study which was Quasi-Experimental with pre-test, post-test and control group, the sample group was selected by available sampling method from patients referred to the Kermanshah Subspecialty Clinic and Training Center. Therefore, 30 female subjects were chosen randomly and assigned to two control and experimental groups (each with 15 subjects). To assess the severity of psychological adaptation, psychological well-being short form Ryff and psychological adaptation of E. Lowell Kelly was used respectively in pre-test. The experimental group experienced the treatment based on commitment and acceptance therapy in eight two hours sessions and the control group did not receive any treatment. These questionnaires were again conducted on both groups in post-test.

Findings: The findings indicated that commitment and acceptance therapy has been effective on the improvement of patient's psychological wellbeing ($p < 0.001$).

Conclusion: Commitment and acceptance therapy is efficacious on increase of psychological well-being of diabetes patients. So it can be applied as a useful method of intervention for improving psychological adaptation in patients with Diabetes.

Key words: Acceptance and Commitment Therapy, Psychological well-being, Diabetes Patients

Introduction

Type II diabetes mellitus (T2DM), which affects approximately 90 to 95% of diabetics (1), refers to a group of metabolic diseases and their common feature is the increasing blood glucose level due to defective insulin secretion, functional impairment, or both (2). It is one of the most common chronic diseases in all countries, and is dramatically increasing due to changes in the lifestyle of individuals and reduced physical activity (3). It is estimated that by the year 2030, the number of people affected will be more than 366 million (2). The disease has a relatively high prevalence in Iran (2.3), so that the number of people with diabetes in Iran was 7.7% and 6.8% in urban and rural populations over 30 years old in Kermanshah province (4). Among the most important side-effects are the disorders that have negative effect on the ability of the patient to carry out and maintain the recommended medical care (5,6).

Psychological stress can trigger or worsen glucose levels through activating hypothalamic-pituitary-adrenal systems. Although chronic diseases are accompanied with an increased incidence of depression, anger, and stress, this is about three times more common in diabetic patients and the prevalence of depression in these patients is 63.3%. Common emotional response at the time of diagnosis is anxiety and anger, but with the progression of the disease, psychological disorders are more pronounced (7).

Due to the vital roles that psychological well-being plays in various mental-social and even physical aspects of one's life, numerous studies have been conducted about well-being and its components. Some scholars consider psychological well-being as the equivalent of happiness and emotional interaction with others (8). Additionally, based on Ryff and Keyes' pattern of psychological well-being, this construct comprises the six components of purpose in life, positive relations, personal growth, self-acceptance, autonomy, and environmental mastery. From this perspective, the health index is not defined as 'lacking the disease,' so that one's well-being rather than sickness is emphasized (9).

Today, we are facing the third generation of these treatments that can be generally called acceptance-based models such as cognitive therapy based on mindfulness (Mindfulness-based cognitive therapy), Metacognitive treatment, and acceptance and commitment therapy (ACT) (10). In this treatment instead of cognitive change, attempt is made to increase one's thoughts and feelings (11). One of the treatments that have recently been the focus of several researchers is ACT (12). The empirical evidence on the effect of ACT on multiple disorders is on the rise. Therefore, this study aimed to investigate the effect of ACT on psychological wellbeing of patients with diabetes.

Methodology

Research design and participants

This is a quasi-experimental study applying pre- and post-test design with the control group, in which after determining and random selection of control and experimental groups, eight intervention sessions each lasting 1.5 hours (90 minutes) were applied to the experimental group, and after therapy sessions, both the control and experimental groups were re-assessed. The population consisted of patients with Type II diabetes referred to Taleghani Speciality and Subspecialty Clinic and Training Center in Kermanshah. Using availability sampling, 40 patients were selected, and applying complete random sampling, even and odd numbers were put in the experimental group ($n = 20$) and the control groups ($n = 20$), respectively.

Tools

Ryff's Psychological Well-being scale (PWB): This scale was developed by Ryff in 1980. The original scale contained 120 questions, but in further studies done afterwards, shorter forms of the scale were proposed with 84, 54, and 18 questions. In the present study, the 18-item scale was utilized with six-point Likert Scaling (ranging from strongly disagree to strongly agree). In addition, the validity and reliability of this scale has been reported in numerous preceding studies. In a study conducted by Dierendonck (2005), the internal consistency of the subscales of the psychological well-being scale (PWB) was appropriate, and their Cronbach's alpha was between 0.77 and 0.90. The correlations of the psychological well-being scale (PWB) with life satisfaction scale, happiness inventory and Rosenberg self-esteem scale (RSES) were 0.47, 0.58, and 0.46, respectively. In a study performed by Khanjani et al (2014), the reported internal consistency for the entire psychological well-being scale (PWB) was 0.94, and between 0.63 and 0.89 for the subtests. Moreover, in the present study, the correlation coefficient for the entire test through test-retest was 0.76, and between 0.67 and 0.73 for the subtests ($p < 0.001$). In addition, Cronbach's alpha was 0.83 in the present study (13).

The protocol of the training sessions were taken based on the research done by Hayes, Streswell and Wilson in 8 sessions of 90 minutes (14). The summary of the content meeting of each session is presented below [Table 1].

Table1: The acceptance and commitment therapy protocol

Session	ACT
1	The limits of control (short and long-term costs and benefits; finger traps), focus on experience (body scan)
2	Values (what you care about, how do you want to live your life)
3	Cognitive defusion (observing thoughts without trying to evaluate or change them)
4	Mindfulness (being in the moment, raisin exercise)
5	Committed action ("road map" connecting values, goals, actions, obstacles, and strategies)
6	Self as context. Metaphor: "Chessboard"
7	Review and continued action in support of values
8	Moving forward

Procedure

The experimental group received 8 sessions of acceptance and commitment therapy, while the control group did not receive any intervention. At the end of the intervention, both groups answered the questionnaires. The therapy protocol was implemented by the researcher. The data were analyzed using SPSS application version 23 and covariance analysis statistical method.

Findings

The descriptive findings of the present study including statistical indices such as mean and standard deviation of the variable studied, are presented in Table 2.

Table 2: Mean and standard deviation of psychological wellbeing in pre-test and post-test of variable studied

Groups	Statistical indices	Pre-test	Post-test
experiment	Mean	65.71	73.20
	Standard deviation	10.64	11.61
control	Mean	64.82	64.58
	Standard deviation	10.56	10.25

As Table 2 shows, mean in the experimental group (Commitment and Acceptance Therapy) increased from 65.71 at pre-test stage to 73.20 at post-test stage. But no significant change was observed in the control group in pretest and posttest stages. Considering the difference observed in the mean of the study groups, average psychological wellbeing in experimental group indicates the effectiveness of the aforesaid procedure.

Table 3: Results of Leven's test to examine the equality of variances in psychological wellbeing scores

Variable	F	df ₁	df ₂	Sig
Psychological wellbeing	3.5	1	38	0.09

In order to evaluate the presumptions of the analysis of covariance (ANCOVA), firstly the homogeneity of slopes of pretests and posttest scores were calculated. Multivariate ANCOVA was used to compare experimental and control groups with respect to psychological wellbeing scores. The results showed that the tests were significant ($P < 0.01$). This means that there was a significant difference at least between two groups. The results are shown in [Table 4].

Table 4: Results obtained from multivariate analysis of covariance on mean scores of post-test of variables in two groups

	Value	F	Hypothesis df	Error df	Sig	Square Eta
Pillai's trace	0.74	15.41	19	2	0.001	0.74
Wilks lambda	0.29	15.41	19	2	0.001	0.74
Hotelling's trace	4	15.41	19	2	0.001	0.74
Roy's largest root	4	15.41	19	2	0.001	0.74

ANCOVA was conducted to find out the difference observed. Considering the calculated effect size, 74% of total variances of experimental and control groups was the result of effectiveness of the independent variable. Moreover, statistical power of the test was 0.80 which means that the test was able to reject the null hypothesis with a power of 74%. [Table 4] only states that in one of the areas there is a significant difference between experimental and control groups. Multivariate analysis of covariance (MANCOVA) was used to distinguish which area was significantly different. The results are shown in [Table 5].

Table 5: Results of single-variable covariance analysis on moderated scores of the studied variables

Variables	Sum of squares	Freedom degree	F	Significance level	Effect size
Psychological wellbeing	1048.54	1	16.51	0.001	0.76

According to Table 5, the results of one-variable covariance analysis between the two groups on the moderated scores of Psychological well-being with $F=16.51$ and significant level 0.001 indicate a significant difference between the two groups with 99% confidence ($P < 0.01$). Regarding acceptance and commitment therapy with effect size of 0.76, it can be said that 76% of the changes in the dependent variable were due to effectiveness of the independent variable.

Conclusion

This study aimed to investigate the effect of ACT on Psychological well-being of patients with diabetes. The results of this study using covariance analysis showed that the difference between Psychological wellbeing scores by group membership (experimental and control) in the posttest was significant ($P < 0.05$). Therefore, intervention by acceptance and commitment (ACT) model had a significant impact on Psychological well-being in the experimental group ($P < 0.05$). The findings of the study are consistent with the results of most previous studies including Graham et al., (15) Levin et al., (16) Johns et al., (17) Rigi Kootesh et al., (18) Yazdanbakhsh et al (19) and Kaboudi et al (20).

ACT has been largely and successfully used in improving psychological well-being and coping styles in clients. To explain how this type of therapy affects the mental health indices in chronic patients, especially Type II diabetic patients, it can be said that with respect to clinical observations by referring to the treatment protocol used in this study, the cause can result from change of attitude in thoughts and cause of thoughts, irrational and negative cycle, and faulty thinking. The goal of treatment is, therefore, to start training based on knowledge and creative helplessness compared to previous solutions from the start and subjects' (patients) acceptance of this novel attitude. According to the findings of the study, since variable of psychological acceptance increased before a significant decrease in indicators of mental health, it can be concluded that the variable of acceptance and increased

attention and action value act as mediators in change and are effective in improving the indicators of psychological acute diabetes.

The findings of this study were consistent with previous studies on the effectiveness of ACT chronic Psychological well-being patients, especially Type II diabetes. Moreover the findings showed the importance and necessity of providing solutions for the treatment and prevention of chronic diseases, especially diabetes given that it is one of the most serious diseases in the world. Treatment based on acceptance- and commitment-based model on mental health, can be used as a complementary treatment to enhance mental health and the overall mental state of patients with diabetes along with drug therapy.

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