

Research Paper:

The Effects of Acceptance and Commitment Therapy With and Without Compassion on Spiritual Fatalism and Depression in Diabetic Patients



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ABSTRACT

Background and Objectives: There exists a relationship between spirituality and depression. Moreover, psychological interventions are effective in this regard. Thus, this study aimed to investigate the effects of Acceptance and Commitment Therapy (ACT) with and without compassion on spiritual fatalism and depression in non-clinically depressed diabetic patients.

Methods: This was a quasi-experimental study with a pre-test, post-test and follow-up and a control group design. The statistical population included all non-clinical depressed patients with type 2 diabetes in the welfare centers of Mashhad City, Iran, in 2020. To form 3 research groups using the purposive sampling method, 33 subjects were selected and randomly divided into the study groups. Moreover, after 2 months, a follow-up test was performed on the research groups. The research instruments included the Patient Health Questionnaire (Depression) by Arbi et al. and the Diagnosis Scale of Egede and Ellis Diabetes.

Results: The repeated measures analysis of variance data suggested that the ACT approaches with and without compassion intervention were effective in increasing spiritual fatalism ($P < 0.05$) and reducing depression ($P < 0.05$) in the explored nonclinical depressed diabetic patients. Moreover, the follow-up data revealed the stability of the collected results ($P < 0.05$).

Conclusion: ACT, as an effective intervention can be used in medical centers to increase spiritual fatalism and reduce depression in diabetic patients with depression vulnerability.

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Introduction

D iabetes significantly impacts the health-care system and its prevalence is increasing worldwide [1]. Furthermore, the risk of depression has been reported to be high in these patients [2]. Literature signifies the role of depression in exacerbating diabetes [3]. This is because diabetes management presents the patient with cognitive challenges, such as predicting premature death and depression [4]; accordingly, it is more difficult for depressed diabetic patients to control their blood glucose levels than other patients [5]. Thus, psychological therapies are required in this respect. Along with other treatment approaches, these measures are essential in controlling diabetes [2, 6]. In addition to the significance of depression in diabetes, the combination of anxiety and depression has been established in most studies [7, 8]. Considering the existence of depression in diabetic patients [3, 8] and the role of beliefs in its severity [9], diabetes might also affect negative thoughts, leading to depression [7].

Numerous studies evaluated the role of religious beliefs (trust & relationship with God) in disease control; however, there is no agreement on the positive or negative effects of spirituality in the form of fatalism; therefore, the definition of fatalism and its meaning remains unanimously stated [10]. Fatalism reflects that events occur without the human ability to affect them. Moreover, fatalism is a complex psychological cycle that manifests in the perception of despair, helplessness, and cognitive helplessness about disease control [10]. Accordingly, death with the onset of diabetes is inevitable and out of control [11]. In this sense, the fatalism of diabetes can increase poor self-care behaviors and negative emotions associated with diabetes [10]. Some studies suggested the direct role of diabetes fatalism [12] and the indirect role of fatalism by increasing depression [13] on reducing caring behaviors. However, the constant control of blood glucose is influenced by socio-cultural and psycho-religious factors, including the spiritual fatalism of the patients with diabetes. In other words, destiny has different dimensions and one of its components is the spiritual dimension, i.e., associated with more caring behaviors [14]. Therefore, studies addressed fatalism; the role of spirituality in the perception of fatalism [10]. A relevant study reported that communication with God is among the main components of fatalism [15]. However, fatalism in the context of Islamic society is different from that of other societies. Besides, Islamic texts and prayers, including the pilgrimage of Aminullah, emphasized the acceptance of divine fatalism and God's

pleasure. Therefore, in the control and treatment of diseases, it is necessary to consider the effects of adaptive capacities, including disease acceptance [16]. Acceptance and Commitment Therapy (ACT) improves the patient's relationship with the thoughts and feelings associated with the disease [17]. Thus, approach was very successful concerning serious physical illnesses. In some studies, the relationship between ACT and fatalism has been negatively evaluated [18, 19]; however, respecting the concept of fatalism, the spiritual component was neglected in these investigations. In Destinyism without spirituality, it does not seem to have a fighting spirit [20]; however, in some studies, this relationship was evaluated to be positive [21]. Additionally, the activation of supportive patterns in the patient increases self-compassion; thus, it is associated with reduced depression [22]. Furthermore, studies reflected its effectiveness in reducing diabetes [23]. Moreover, there is a close relationship between compassion and acceptance [24]. Therefore, ACT combined with compassion seems to present a more desirable influence; therefore, this method can reverse the negative evaluation and fatalism loop, i.e., prevent in depressed diabetic patients. Therefore, this study aimed to investigate the effects of ACT with and without compassion on depression and spiritual fatalism among patients with diabetes and depression vulnerability.

Methods

This was a quasi-experimental study with a pre-test, post-test and follow-up and control group. The statistical population included all non-clinical type 2 diabetic patients in the welfare centers of Mashhad City, Iran (13 centers with 230 types 2 diabetic patients) in 2020. To select the research sample, a purposive sampling method was used. Accordingly, among the study population, 100 patients who met the following inclusion criteria were selected. The inclusion criteria of the study included having diabetes, not receiving psychological treatment in the last 6 months, and not having a psychological disorder and at least two years have passed since having diabetes. The exclusion criteria of the study consisted of the occurrence of diabetes complications respecting diabetic eyes and feet and kidneys according to the patient's records and the diagnosis of the treating physician, and receiving insulin-dependent treatment.

In the second stage, among these patients, 33 individuals who received a higher score in the patient health questionnaire (a score higher than the cut-off point of 1.1), indicating high depression symptoms in patients with type 2 diabetes [25], were selected. The study participants were chosen according to the inclusion/exclu-

sion criteria as well as experts' opinions, i.e., conducted through interviews and examining patient records. This study was approved by Birjand University of Medical Sciences (Code: IRCT20191012045072N1) and the ethics code was obtained from the Ethics Committee of Birjand University of Medical Sciences (Code: IR.BUMS.REC.1398.001). Then, on 10/5/2020, after coordination with the relevant diabetes specialists, patients' consent was obtained for cooperation. The first experimental group received eight 90-minute ACT; concurrently, the second experimental group received compassion-based ACT in sixteen 90-minute sessions (two sessions per week). However, the control group remained on the waiting list. Notably, although no intervention was provided to the control group, to comply with the ethical principles, two sessions of educational intervention were performed in them after the follow-up period. Then, SPSS was applied for the statistical analysis of the collected data. The following tools were employed to collect the required data in this research:

The Patient Health Questionnaire (PHQ) (Depression): This 9-item questionnaire was developed by Erbe et al. [25] and is among the most appropriate tools for screening and diagnosing depression in chronic patients. The scores range between 0 and 3, i.e., answered on Likert-type scale. Concerning the mean score, the cut-off point equals 1.1, indicating a high level of depressive symptoms in type 2 diabetic patients. Cronchia Sprinter and Williams [26] reported Cronbach's alpha coefficient of 0.89 and sensitivity of 88% for this tool. In the study of Davis et al. [27], the convergent validity of depression with anxiety and depression in diabetes was significant and Cronbach's alpha coefficient was calculated as 0.81, suggesting the appropriate reliability of the instrument.

The Diabetes Fatalism Scale (DFS): This 12-item questionnaire consists of 3 subscales, answered on a 6-point Likert-type scale, i.e., 1) emotional disturbance (helplessness) (5 items, including 1, 2, 3, 4, 5), 2) spiritual dimension (4 items, including 6, 7, 8, 9), and 3) ability to control diabetes (3 items, including, 10, 11, 12) [10]. In each subscale, the average of the total scores is calculated. In each subscale, the score is between one and 6, and the higher score indicates the high value in that subscale. The validity of the questionnaire was assessed by the convergent method, suggesting that it has a positive and significant correlation with the questionnaire of self-management, problem management, and self-care ability. The Cronbach's alpha coefficient for 12 items was calculated to be 0.80 [10]. Moreover, the questionnaire was translated into Persian, then back-translated into English, and finally, the initial questionnaire and

the translated questionnaire were examined for content matching. The two-week test-retest reliability values for emotional distress, spiritual dimension, and self-efficacy perception were obtained as 0.5, 0.59, and 0.73, respectively, i.e., significant. Cronbach's alpha coefficient was obtained for each subscale of emotional distress (0.85), spiritual dimension (0.98), self-efficacy (0.74), and the whole questionnaire (0.64), which reflected the appropriate reliability of the tool. In the present study, the spiritual component of diabetes fatalism of this tool was used.

ACT sessions: In this study, ACT sessions were presented based on Estrosal and Hayes's treatment protocol [28] 8 sessions according to Table 1.

Compassion-based ACT: First, compassion intervention and related techniques [29], then ACT intervention was performed in the group in sixteen 90-minute training sessions (twice a week). A summary of compassion-based ACT sessions is listed in Table 2.

Results

The present study findings suggested that 75.8% of the research subjects were women and 24.2% were men. Furthermore, 63.6% of the ACT group members, 54.5% of the compassion-based ACT group, and 45.5% of the control group had a high-school diploma. The mean age of the study subjects was 41 years; their minimum and maximum age were 35 and 50 years, in sequence. Table 3 manifests the Mean \pm SD values of depression and spiritual fatalism in the study groups at pre-test, post-test, and two-month follow-up stages.

Multivariate repeated-measures Analysis of Variance (ANOVA) was used to analyze the obtained data on depression and spiritual fatalism concerning diabetes. To ensure normality, the Shapiro-Wilk test value was obtained per variable in the experimental and control groups at 3 non-significant evaluation steps ($P>0.05$). To evaluate the parity of covariance matrices, Box's M statistics concerning diabetic depression ($P<0.001$, $F_{1471/19.21}=3.52$), equal to 110.67 and respecting spiritual fatalism ($P<0.001$, $F_{2898/11.6}=4.45$) equal to 32.01 was obtained, i.e., it did not confirm of the mentioned hypothesis; thus, to investigate the interaction effect of time and group, the variable effect was used. Moreover, the results of which in each of the repeated-measures ANOVA revealed a significant interaction between the effects of time and group ($P<0.05$).

To investigate the effect of the subjects, the assumption of Mauchly's Test of Sphericity (Table 4) was explored

Table 1. The contents of ACT sessions

Session	Contents
First	Complete understanding of the nature of diabetes and coping strategies. Determining the clients' previous attempts to cope with anxiety, describing thoughts, and symptoms; presenting the metaphor of the hungry tiger.
Second	Control as a problem. Presenting the metaphor of a man in a pit, the metaphor of a chocolate cake, and paying attention to the passion of the clients.
Third	Address clients' experiences and control recognition. Presenting the rope metaphor with the giant, the metaphor of the lie detector, emphasizes the importance of promoting and cultivating mindfulness.
Fourth	Create an orientation to develop mindfulness skills. Suggesting Polygraph metaphor, milk metaphor practice, passion as an alternative to control two-scale metaphor, the introduction of mindfulness through mindful breathing practice.
Fifth	Introduce the importance of values, distinguish them from goals, and set simple behavioral goals.
Sixth	Provide practical methods for breeding faults. The use of tombstone metaphors, and mindfulness skills instructions.
Seventh	Pay attention to the function of emotions, the habit of behavioral avoidance and distinguishing between vivid and vague emotions, controlling the emotional cycle, emotional avoidance, the metaphor of hot stove, vivid emotions versus vague emotions.
Eighth	Presenting the idea of commitment and strengthening choices to achieve those goals, gardening metaphor, obstacles to achieving goals and passions, bubble metaphor on the road, the metaphor of passengers on the bus, the metaphor of climbing the peak.



in each of the variables, indicating that this assumption was not confirmed. Therefore, the Epsilon Greenhouse index was used. In total, the effect of time, as well as time and group interaction, was significant per study variable.

In evaluating the equality of variance of time-variable error during the treatment, the results of Levene's test for health variable (depression) for pre-test ($P=0.96$, $F_{30.2} =$

0.03), post-test ($P>0.001$, $F_{30.2} = 6.67$), and follow-up ($P>0.001$, $F_{30.2} = 7.85$), at the level of 0.05 at the pre-test and the post-test at the level of 0.001 were non-significant, indicating the confirmation of the assumption. Additionally, Levene's test results for spiritual fatalism at pre-test ($P=0.9$, $F_{30.2} = 0.09$), post-test ($P=7.17$, $F_{30.2} = 0.003$), and follow-up ($P=0.007$, $F_{30.2} = 7.81$) were observed to be non-significant (0.05), confirming the above hypothesis.

Table 2. A summary of compassion-based ACT sessions

Session	The Content of the Sessions
First	Compassion, suffering, healing, and introducing the causes of human suffering.
Second	Introducing emotion regulation systems, introducing different types of human suffering, introducing different types of human needs, introducing the dimensions of compassion.
Third	Introducing logical reasoning and compassionate reasoning.
Fourth	Applying cognitive error techniques, weakening the good coalition of thoughts and emotions. Doing the practice of being kind and kind to others, performing the practice of playing the role of being kind yourself.
Fifth	Introducing the compassionate idea. Applying mindfulness techniques, illustration, and introducing kind human characteristics.
Sixth	The contrast between experience and mind, introducing the skill of compassionate attention. Introducing different dimensions of compassionate attention, and introducing being non-judgmental.
Seventh	Introducing the skill of compassionate sensory experience. Demonstrating the dangers of focusing on results, discovering the practical values of life, retelling the characteristics of a kind person, introducing kind behavior, and introducing different types of compassionate behavior.
Eighth	Determining the patterns of action commensurate with values, re-introducing kind behavior.



Table 3. The descriptive indicators of depression and spiritual fatalism in different study groups and assessment steps

Steps	Group	Mean±SD	
		Patient Health (Depression)	The Spiritual Destiny of Diabetes
Pre-test	ACT	2.13±0.42	3.90±1.125
	ACT & CFT*	1.87±0.47	3.72±0.98
	Control	2.30±0.53	2.27±0.84
	Total	2.10±0.49	3.30±1.21
Post-test	ACT	1.11±0.19	4.66±0.85
	ACT & CFT	1.00±0.001	4.99±0.02
	Control	2.22±0.52	2.34±0.84
	Total	1.44±0.64	4.00±1.37
Follow-up	ACT	1.09±0.16	4.69±0.83
	ACT & CFT	1.00±0.001	5.00±0.001
	Control	2.11±0.56	2.45±0.85
	Total	1.40±0.60	4.05±1.33

*CFT: Compassion-Focused Therapy

In examining the between-group effects, [Table 5](#) suggests that the effect of the group was significant on both study variables in both analyses.

To find the difference between the mean scores in the research groups, the Bonferroni post hoc test was used; the relevant data indicated no significant difference between the ACT and ACT/CFT groups for depression ($P>0.05$). However, there was a significant difference between the mean scores of ACT and ACT/CFT and the control groups for health (depression) (respectively,

mean difference= -0.76, $P<0.001$; mean difference= -0.92, $P<0.001$); thus, it was effective in both interventions. Regarding spiritual fatalism, the difference in the mean values between the groups of ACT and ACT/CFT was insignificant ($P>0.05$); however, regarding the difference in the mean scores between the ACT and control groups (mean difference= 2.06, $P=0.001$), as well as the ACT/CFT and the control groups (mean difference= 2.21, $P<0.001$) it was significant, indicating the effectiveness of both provided interventions. To evaluate the stability of efficacy and changes in each experimental

Table 4. Mauchly's test of sphericity and the between-group effects

Intragroup Effect	Effect	Mauchly	Chi-Squared	df	P	Effect	Sum of Squares	df	Mean of Squares	F	P	Eta Squared
Spiritual fatalism	Time	0.01	117.41	2	0.0001	Time	11.64	1.01	11.45	42.76	0.0001	0.58
		Greenhouse Index	0.51			Time × Group	4.88	2.01	2.41	8.96	0.001	0.37
						Error	8.16	3.62	0.27			
Depression	Time	0.03	98.27	2	0.0001	Time	10.16	1.02	9.91	136.47	0.0001	0.82
		Greenhouse Index	0.509			Time × Group	3.39	2.05	1.65	22.80	0.0001	0.60
						Error	2.23	30.75	0.07			

Table 5. The between-group effects data

Variable	Source	Sum of Squares Type 4	df	Mean of Squares	F	P	Eta Squared
Spiritual fatalism	Width of origin	1418.10	1	1418.10	850.8	0.0001	0.96
	group	100.96	2	50.48	30.28	0.0001	0.66
	Error	50.00	30	1.66			
Depression	Width of origin	269.79	1	269.79	715.32	0.0001	0.960
	group	16.08	2	8.04	21.31	0.0001	0.587
	Error	11.31	30	0.37			



group in the assessment stages, the results of the Bonferroni test are reported in Table 6. Respecting the groups of ACT and ACT/CFT, the mean scores in the post-test and follow-up stages were significantly different from those of the pre-test; these changes were maintained until the follow-up step.

Discussion

This study evaluated the effects of ACT with and without compassion on spiritual fatalism and depression in non-clinical depressed diabetic patients. The present study results suggested that ACT with and without compassion was effective in increasing spiritual fatalism and reducing depression in the study subjects. Moreover, this effect remained stable over time (two-month follow-up). Studies reported that fatalism was associated with increased glucose index [15]. In some studies, a negative relationship was expressed between ACT and fatalism,

i.e., in contrast to other studies [18, 19, 21]. Notably, the scale used in the present study was spiritual fatalism, while in previous studies, the overall score of fatalism was studied regardless of the subscale of spiritual fatalism, addressing the compulsion and fatalism of the times. ACT, by increasing acceptance of the disease along with trusting in God and attempting to control the disease in diabetic patients, could increase spiritual fatalism. In examining the effectiveness of ACT on increasing spiritual fatalism, there was no difference between the interventions with and without compassion, suggesting the significance of ACT. In other words, ACT emphasizes the intrapersonal acceptance of functional forms, especially the natural reactions of body and mind [30]; therefore, it can increase spiritual fatalism in patients [14], i.e., a kind of active coping strategy, by creating acceptance without surrender. Furthermore, the study data outlined that ACT with and without compassion was effective in reducing depression in diabetic patients. This finding

Table 6. Bonferroni test data of the studied groups at pre-test, post-test, and follow-up steps

Variable	Time	ACT			ACT/CFT			
		Mean Difference	SE	P	Mean Difference	SE	P	
Spiritual fatalism	Pre-test	Post-test	-0.75	0.15	0.001	-1.27	0.29	0.004
		Follow-up	-0.79	0.16	0.002	-1.28	0.3	0.005
	Post-test	Follow-up	-0.03	0.01	0.36	-0.01	0.01	0.99
Health (Depression)	Pre-test	Post-test	1.02	0.09	0.0001	0.87	0.14	0.0001
		Follow-up	1.05	0.1	0.0001	0.87	0.14	0.0001
	Post-test	Follow-up	0.03	0.01	0.08	0.00	0.001	0.0001



ACT: Compassion Focused Therapy; CFT: Acceptance and Commitment Therapy; SE: Standard Deviation

was consistent with those of other studies [23, 31] conducted in diabetic patients. In explaining this alignment, we can consider the relationship between spiritual fatalism and depression. Studies on the role of low scores of the spiritual component of fatalism in increasing depression are more important than other components of fatalism; namely, the emotional distress of diabetes [32] and disease control (another component of fatalism) [33]. These data highlight the importance of the role of fatalism spirituality in reducing depressive symptoms among diabetic patients [34, 35]. Moreover, the present study findings revealed the effectiveness of ACT on increasing spiritual fatalism and reducing depression. Therefore, considering the relationship between fatalism and reducing depression [13], it is expected that ACT indirectly reduces depression by increasing spiritual fatalism. Although in this study, this finding was not directly examined, due to the effectiveness of ACT on both and concerning the relationship between depression and spiritual fatalism, this possibility can be raised. In the ACT, mindfulness, acceptance, and cognitive skills are used to increase psychological adjustment; accordingly, they can reduce learning-related depression by recognizing these strategies [30]. In this intervention, the individual becomes aware of diabetes and its consequences; accepts unpleasant thoughts and feelings related to diabetes, and shapes his/her behavior in line with their values and not based on diabetes [2]. In addition, studies demonstrated that this intervention increases the tolerance of suffering and encourages the patient to seek treatment [36]. This is because reducing commitment to the disease increases vulnerability [37]. Furthermore, it is necessary to accept the difficult conditions of compassion because there is a close relationship between compassion and acceptance; however, compassion can be introduced as an adapted form of acceptance. It indicates the degree of acceptance and its aspects. It is also unfavorable for itself and life [8], and is at the heart of ACT intervention; thus, compassion could not increase the effectiveness of ACT intervention. In other words, the effectiveness of ACT without compassion was significant in this regard. It is suggested that the effectiveness of ACT with compassion intervention be re-examined in other clinical examples. However, follow-up should be regarded. Additionally, in the present study, self-report questionnaires were used.

Conclusion

The present study data revealed the effectiveness of ACT with and without self-compassion intervention on reducing depression and increasing spiritual fatalism. Thus, ACT can reduce the associated psychological

symptoms of diabetes, including depression. It can provide the patient with a level of effective psychological and behavioral function through positive fatalism; accordingly, this attention helps the patient to find health-related pathways by focusing on health-related behaviors rather than focusing on illness and disability [38]. In other words, ACT without compassion can be effective in reducing depression and increasing spiritual fatalism.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by Birjand University of Medical Sciences (Code: IRCT20191012045072N1) and the ethics code was obtained from the Ethics Committee of Birjand University of Medical Sciences (Code: IR.BUMS.REC.1398.001).

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Authors' contributions

Study design and idea: Fatemeh Shahabizadeh; Scientific advisor: Fatemeh Shahabizadeh and Alireza Mahmoudi Rad; Data collection and analysis: Reyhaneh Panahi and Fatemeh Shahabizadeh; Preparing, compiling, and editing the educational program: Reyhaneh Panahi, Fatemeh Shahabizadeh; Writing, compiling and editing the article: Fatemeh Shahabizadeh and Reyhaneh Panahi

Conflict of interest

The authors declared no conflict of interest.

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