Orginal Article

Open Access

Iranian Journal of Diabetes and Obesity (IJDO)

The Effectiveness of Acceptance and Commitment Therapy on Resilience at Women with Type 2 Diabetes in Yazd City

Elham Balooch Zadeh[1], Farzad Farhoodi[2*], Reyhaneh Azizi[3]

[1]M.A. of Psychology, Islamic Azad University, Yazd Branch, Yazd, Iran.
[2]Assistant Professor, Department of Psychology, Islamic Azad University, Yazd Branch, Yazd, Iran.
[3]Assistant Professor, Diabetes research Center, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

Abstract

Objective: Introduction: Diabetes is a chronic disease that engages affected person for long time and endangers mental health of affected persons. Purpose of this paper is examining the effect of training courses of acceptance and commitment therapy (ACT) on resilience of women with type 2 diabetes mellitus (T2DM) in Yazd City.

Materials and Methods: This research was a quasi-experimental study with two groups of experiment and control. In order to admit and reject the hypotheses, a resilience questionnaire has been used. Sample size was 30 females in 30-60 years old with T2DM that have participated in this research as available and they have been set in two groups. To analyze the data, SPSS version 16 and multivariate analysis of covariance statistical test have been used.

Results: Findings showed a significant increase in experimental group in resilience scale in the post-test (P= 0.01). In quarterly follow-up step, this effect was persistent too (P< 0.05).

Conclusion: Course of ACT can cause increasing resilience in T2DM women in Yazd City. So it can be used as an effective intervention.

Keywords: Type 2 diabetes mellitus, Resilience, Acceptance and commitment therapy

QR Code:

Citation: Balooch Zadeh E, Farhoodi F, Azizi R. The Effectiveness of Acceptance and Commitment Therapy on Resilience at Women with Type 2 Diabetes in Yazd City. IJDO. 2022; 14 (1) :1-8

URL: https://ijdo.ssu.ac.ir/article-1-680-en.html

10.18502/ijdo.v14i1.8728

Article info:

Received: 12 October 2021

Accepted: 09 January 2022

Published in February 2022

This is an open access article under the (CC BY 4.0)

Corresponding Author:

Farzad Farhoodi, Assistant professor, Department of psychology, islamic azad university, Yazd branch, Yazd, Iran.

Tel: (98) 913 359 0446

Email: farzad.farhoodi@iauyazd.ac.ir

Orcid ID: 0000-0001-5569-2217

[Downloaded from ijdo.ssu.ac.ir on 2026-11-24]

[DOI: 10.18502/ijdo.v14i1.8728]

Introduction

Diabetes is one of the most prevalent chronic and progressive metabolic diseases that has a destructive effect on pancreas that produce insulin. This disease is one of the main causes of morbidity, mortality and economic expenses in all over the world (1).

Chronicity of diabetes also influences on quality of life. Based on the advice provided to patients, they know their disease as chronic and feel its heavy consequences on their life and their family members, they blame themselves and consider themselves weak in the encountering this disease (2). Diabetes complications such as micro and macro vascular involvement, denial of the disease, sensitivity to blood sugar fluctuations, insulin injections, dietary restrictions and the need for careful and continuous self-care causes psychological problems such as stress in diabetes patients (3-4).

Stress and pressure of diabetes can seriously endanger the mental health of people with diabetes. Therefore, experts in the field of health psychology have considered the sources of stress and effective coping strategies to reduce and manage it. These researchers believe, coping and examining strategies are proper, individual`s adaptability with new conditions has been facilitated and individual would adapt to new conditions (5). But if psychological coping strategies are improper and insufficient, people should seek more coping and protective sources to achieve a new and proper plan for stressful positions and it may result in abundant reactions and mental disorders (6). Resilience is one of the effective coping approaches that can improve diabetes patients' view to take a healthier lifestyle and facilitate transference and adaptability in these people (7). Resilience implies dynamic process of positive adaption and adaptability with harsh and hard experiences in life (8). Individuals with diabetes may have low resilience because based on Pinquart`s definition of resilience, a person faced with such a problem can`t rest on his abilities to overcome stress, coping abilities, emotional stability and individual characteristics that increase social support by others (9). Nejati Safa et al. results suggested diabetic patients' resilience is lower than non-diabetic people significantly (10).

Generally, resilience is an important conception in realizing adaption process and learning adaptability methods in people with chronic diseases (11). Tugade and Fredrickson in their research showed resilience lead to this belief that unpleasant events can be corrected, modified, and even disappeared (12). Therefore, people with chronic diseases should learn adaptive skills and apply them in facing with daily challenges (13). As to importance of resilience in chronic diseases, researchers seek approaches to increase it in people; update treatments in psychology that are called the third wave of psychotherapy, emphasize on the role of individual psychological resources in encountering stressors, because in this way, appropriate treatment measures can be provided to help the person under pressure (14).

One of the treatments in this area is acceptance and commitment therapy (ACT), this treatment is a psychological intervention that applies approaches based on awareness and acceptance with commitment strategies and behavior change to increase psychological flexibility (15). ACT does not seek to make a direct change in clients but its aim is to assist the clients to encounter with his experiences in different methods and it causes increasing psychological and behavioral flexibility in the contexts that experimental avoidance is dominated and prevent the person from basic life. Psychological and behavioral flexibility increase individual`s ability in practical choice among different options that are more proper, not practical choice is performed merely to avoid turbulent thoughts, feelings, or memories which are forced on the person. Also, it provides ability to have complete

[Downloaded from ijdo.ssu.ac.ir on 2026-11-24]

[DOI: 10.18502/ijdo.v14i1.8728]

relationship with present tense as well as changing and keeping behavior in serving valuable and important aims of life (16). The aim of ACT is increasing quality of life by decreasing impact on ineffective control strategies and supporting behavioral change based on values in (17). This aim is achieved by using experimental exercises that targets psychological flexibility. Psychological flexibility includes six main processes in ACT: attention to the current moment, values, experimental acceptance, cognitive inconsistency, flexibility prospect, values and acts on commitment (14).

Results of different researches showed effectiveness of this treatment on resilience and generally people encounter with stressful event. However no research has examined effectiveness of this treatment on women with diabetes. In this research, we have dealt with effectiveness of ACT on resilience in type 2 diabetes mellitus (T2DM) women in Yazd City.

Materials and Methods

The current research is a quasi-experimental study in pre-test and post-test method and follow-up. The statistical society of this research was all T2DM women who were referred to the Yazd diabetes center in 2019. The researcher intended to test the effectiveness of ACT, so it was attempted to prevent entering participants with lateral variables. Therefore, method of sampling was available and based on criteria for entering/leaving the research plan.

After examining entry criteria (female sex, diagnosis of T2DM by specialist, satisfaction to take part in this plan, lack of diagnostic criteria for obvious psychiatric disorders and not taking any kind of psychiatric drug, having age of 30-60) and leaving criteria (having type 1 diabetes, having more than one absence in therapeutic sessions, not doing assignments, lack of cooperation, having serious psychiatric diseases), 52 individuals were chosen systematically that 30 persons were chosen among them coincidentally (sample size). So, totally of 30 women were put in two groups of 15 individuals as control and experiment. The total sample size was women 30 and 60 years old.

The Connor-Davidson Resilience Scale (CD-RISC) was used to distinguish between tolerant and non-tolerant people in clinical and non-clinical groups (18). CD-RISC has 25 items which are scored in a Likert scale between 0 (entirely wrong) to 5 (always right). Green et al. (19) have dealt reliability and validity of this scale. They have investigated this scale on 1981 military men in the United States in 2001. About the reliability of this test, Cronbach's alpha equal with 0.91 was gained, in analytical examination of two factors, also chi- square test for 76 samples was equal with 789.81, $P< 0.001$and RFI= 0.95 that show high correlation with their relevant factors. Also in Iran, a research was conducted by Samani et al (20) among the students, they report its reliability of 0.93 and its validity (in method of Factors Analysis and Convergent and divergent validity) was validated by test producers in different groups of risky and common. Regarding validity of this instrument, they also computed KMO value of coefficient for factor analysis equal to 0.89 and value of Bartlett spherical test equal to 1893.83. The amount of eigenvalue for general factor was computed at 6.64 too.

Steps of conducting research were performed in council hall of the Yazd Diabetes Center, so the participating women took part in the sessions and then intervention was begun. People of test group participated in intervention of ACT and in this period, the control group was received no intervention. After ending the sessions, once again, resilience questionnaire was conducted for two groups and after three months this questionnaire was conducted again.

Therapeutic plan of this research was achieved as merging some therapeutic protocols of ACT. The considered training was provided in framework of eight sessions of 75 minutes, every week, one time for the test group. In the training sessions, whiteboard,

[Downloaded from ijdo.ssu.ac.ir on 2026-11-24]

[DOI: 10.18502/ijdo.v14i1.8728]

slide and video clip were used. Also, behavioral exercises were used in the sessions as role playing and discussion about the taught material too and the participants were asked to apply the given exercises in their daily life. The summery of the sessions is as following (Table 1).

The data resulting from the research was analyzed by SPSS 16 software and tests of descriptive statistics and multivariate covariance analysis (MANCOVA)/ follow-up tests.

Ethical considerations

This research was approved there by Ethics Committee of the Shahid Sadoughi University of Medical Sciences, Yazd (ethics code: IR.SSU.REC.1398.087).

Results

Mean (±SD) age of participants in test group was 49 (±1.2) years old and in control group was 47 (±1.1) years old. The results of resilience questionnaire which have been completed by the participants have been provided in Table 2.

Mean of resilience variable in pre-test step among control group was higher than mean of this variable in experimental group and in post-test step, among experimental group was higher than control group. Also mean of this variable among experimental group in post-test step was higher than pre-test step and among the control group in post-test step was a little lower than pre-test step.

To investigate the effectiveness of ACT on resilience in women with type 2 diabetes in the Yazd, covariance analysis test was used, estimations related to assumptions (linear and significant effect of auxiliary variable on dependent variable, regression homogeneity and homogeneity of variance of groups) and analysis test of covariance has been reported in Table 3.

As shown in Table 3, the mean of resilience variable in pre-test step among control group is higher than experimental group and in post-test step in experimental group is estimated higher than control group. Also, mean of this variable among experimental group in post-

Table 1. Summery of process of acceptance and commitment therapeutic sessions

The first treatment process	Acceptance including definition, aims, clinical points; techniques, exercises and metaphors of acceptance and tendency
The second treatment process	Cognitive diffusion including definition, aims, clinical points; techniques, exercises and metaphors of diffusion
The third treatment process	Contact with the current tense and awareness attention including definition, aims, clinical points; techniques, exercises and metaphors of contact with the current tense
The forth treatment process	Identifying kinds of self and separation of self-concept from self as context including definition, aims, clinical points; exercises and metaphors
The fifth treatment process	Clarification of values: aims, clinical points including exercises and metaphors of identifying private selected values
The sixth treatment process	Creating acts on commitment toward the values including definition, aims and clinical points, way of linking the values to action plan designed for committed action

Table 2. Descriptive statistics of resilience variable in two steps of pre-test and post-test in terms of group (from questionnaires)

Variable	Group	Step	Mean (±SD)	*P*
Resilience	Experiment	Pre-test	58.50 (±3.96)	0.0001
		Post-test	87.25 (±2.71)	
	Control	Pre-test	64.67 (±4.00)	0.008
		Post-test	60.47 (±4.18)	

P approved by the authors

Table 3. Estimates of covariance analysis test assumptions

Variable	Assumption					
	Effect of pre-test		Regression homogeneity		Variance homogeneity	
Resilience – post-test	beta	sig	f	sig	lovin	sig
	0.24	0.221	0.01	0.925	0.51	0.483

[Downloaded from ijdo.ssu.ac.ir on 2026-11-24]

[DOI: 10.18502/ijdo.v14i1.8728]

test step is higher than pre-test and among the control group in post-test is lower than pre-test step.

To examine the effectiveness of ACT on resilience of T2DM women in the Yazd, covariance analysis test has been used, estimates of assumptions (linear and significant effect of auxiliary variable on dependant variable, regression homogeneity and homogeneity of variance of groups) and covariance analysis test has been reported as Table 4.

According to the values in Table 4, assumption of auxiliary variable on dependant variable is insignificant, so this assumption is not accepted, while assumption of regression homogeneity and variance homogeneity is true.

According to findings, there is a significant difference between two groups of experiment and control group in mean of resilience variable in post-test step (P<0.001). In other words, mean of resilience variable among experimental group in post-test has been estimated significantly higher than control group. Therefore, the research hypothesis is accepted that ACT can cause increasing resilience of women with type 2 diabetes in the Yazd City.

Discussion

The findings of this research showed amount of resilience scores in experimental group in post-test had significant changes. After doing covariance test also it was specified, changes in scores of experiment and control group has been significant and ACT course has caused increasing the resilience of T2DM women in Yazd City. The findings of this research are consistent with findings of Wynne et al., Thompson et al., and Udell et al. who have shown in their researches, ACT causes increasing resilience and mental health and decreasing stress in chronic diseases. Shayeghian et al. (21) have also shown that ACT can be effective in managing complications and self-efficacy in patients with diabetes. This research also is consistent with Khodabakhshi Koolaee et al. (22) who concluded in their research, group resilience training against stress has an effect on improving the psychological well-being of T2DM patients. Also it is consistent with Mir Mahdi and Rezaali (23) that in their research concluded mindfulness training had a significant effect on improving resilience in T2DM women, too. Since it indicates training can influence on resilience of diabetic patients. In clarifying the findings of this research, it can be indicated in this way; resilience is a kind of self-healing with positive emotional, sensational and cognitive consequences (22). Some of events happen for people daily, along with it, negative emotions and thoughts decrease or remove individual`s tolerance and ability. Diabetes can be considered as one of these factors (24). Accordingly, ACT is one of the treatments that help the clients to have a right understanding (of anger and anxiety) and do not compound them with language and experience this excitement completely. In fact, the full experience of emotions through the mindfulness skill that includes acceptance, failure, and self-processes as context, the instrument moderates these excitements and changes their thought and excitements that cause raising tolerance and resilience in them.

In addition, it can be said, one of the factors which causes decreasing ability and finally resilience of individuals with diabetes is trying to control negative intrinsic experiences (thoughts and excitements) that this disease have. ACT does not consider any kind of controlling to decrease these experiences but also it considers this act as a barrier for a valuable life. In other words, in the ACT

Table 4. Assessments of prerequisites of covariance analysis

Variable	Assumption					
	Effect of pre-test		Regression homogeneity		Variance homogeneity	
	sig	Levin	sig	F	sig	Beta
Resilience – post-test	0.24	0.221	0.01	0.925	0.51	0.483

[Downloaded from ijdo.ssu.ac.ir on 2026-11-24]

[DOI: 10.18502/ijdo.v14i1.8728]

model, any of internal events when are experienced, they are not inherently harmful to human health, their harmfulness is due to the fact that we consider them harmful, unhealthy and bad experiences and we are going to control and remove them (14). In fact, avoiding and attempting to remove these negative experiences like stress and anger due to diabetes may release these experiences in a short time but these experiences are more likely to be more intense. Creative helplessness is used in ACT help to the clients who realize the ineffectiveness of combating internal experiences; this strategy helped the diabetic women, instead of attempting to change their negative thoughts, expanding their behavioral treasury toward personal values that are valuable. On the other hand, committing affected women in the research to follow the chosen values (such as health, interpersonal relationship) caused to follow self- care in experiment group. Self-care in diabetes is one of the most important issues to control the disease and it can have positive effects on patient`s ability to control the disease (25). So, ACT both directly through acceptance and awareness of negative experiences and indirectly through helping to follow self-care causes increasing resilience in women with diabetes.

In fact, the process of clarifying values which is one the processes of psychological flexibility helps to women with diabetes to choose and prioritize their paths of life freely and in addition, they would choose aims in framework of these values and they would get committed to behaving according to the private values. Harris (26) indicated in the ACT model, each person can choose his life direction and use word of "values" to describe the chosen directions. The values are like choosing and combining verbs and adverbs in writing a sentence. While in Walsh `s view (27), the moral aspect of the resilient people in fragile events and crises get wider, they feel more purposefulness in the life and their compassion and kindness to others increase. Also, the resilient people believe, they have lost some of their time and energy for remorse and compensation and recovery of their old injuries but instead, they have investigated their experiences and they have attempted to learn valuable lessons that can be their guide in the future and in this way, make a better life for themselves. Issacson (28) believed, the resilient people can keep their self-efficacy in hard situations and evaluate the situation, reinforce their commitment to their aims and increase their motivational behavior and as a result, they can get high advancement. The process of choosing values is considered one of the main processes of psychological flexibility in ACT treatment; it helps the people in situations where escape from something or they become agitated and mentally confused or when control their behavior, they can define what is related to their life. Finally, the clients are driven to a more purposeful and richer life and act based on values and terms of their current environment, in turn, it can increase resilience in women with diabetes.

As the training course was based on commitment and acceptance has been effective on resilience, this course can be applied for other diseases and can be offered to patients as standard by medical centers. Also, other centers that are somehow connected to people with low resilience can benefit from these courses. In addition, as this research has been conducted for T2DM women, if it would be possible, the male statistical sample also be consider. Moreover, the effect of parameters such as job, education, and age on benefiting the treatment course based on acceptance and commitment examined in a future research.

This research had its limitations: first, sampling method in this study was available and second, was due to cost constraints, and hence we tried to use the minimum sample size.

Conclusions

The findings of this research showed amount of resilience scores in experimental group in post-test had significant changes. After doing

[Downloaded from ijdo.ssu.ac.ir on 2026-11-24]

[DOI: 10.18502/ijdo.v14i1.8728]

covariance test also it was specified, changes in scores of experiment and control group has been significant and ACT course has caused increasing the resilience of T2DM women in Yazd City.

Acknowledgments

Hereby, the authors of this research appreciate all the contributors in this research and dear personnel of Yazd Diabetes Center.

Funding

This research is funded by Islamic Azad University, Yazd Branch.

Conflict of Interest

The authors declare that they have no conflicts of interests

References

1. Ghaedi Heydari F, Toghian Chaharsoghi N. The effect of simultaneous incidence of diabetes and depression. Jorjani Biomedicine Journal. 2012;1(1):1-8.(in Persian)
2. Akbarnataj K, Hassanzadeh R, Dousti Y, Fakhri M, Shirafkan A. The Effects of Some Psychological Comorbidities and Diabetes: A Review Article. Journal of Diabetes Nursing. 2014;2(3):69-83.(in Persian)
3. Gonzalez-Garcia M, Ferrer MJ, Borras X, Muñoz-Moreno JA, Miranda C, Puig J, et al. Effectiveness of mindfulness-based cognitive therapy on the quality of life, emotional status, and CD4 cell count of patients aging with HIV infection. AIDS and Behavior. 2014;18(4):676-85.(in Persian)
4. Bafroe NM, Abadi HS, Jalali M, Ardakani MA, Dadgari A. The Relationship between Resilience and Hardiness in Patients with Type 2 Diabetes in Yazd. 0Journal of Shahid Sadoughi University of Medical Sciences. 2015;23(2):1858-65.(in Persian)
5. Molavi P. On the relationship between coping strategies and mental health of diabetic patients. Journal of Fundamentals of Mental Health. 2010;12(46):7-480.(in Persian)
6. Livneh H, Wilson LM. Coping strategies as predictors and mediators of disability-related variables and psychosocial adaptation: An exploratory investigation. Rehabilitation Counseling Bulletin. 2003;46(4):194-208.
7. Bradshaw BG, Richardson GE, Kumpfer K, Carlson J, Stanchfield J, Overall J, et al. Determining the efficacy of a resiliency training approach in adults with type 2 diabetes. The Diabetes Educator. 2007;33(4):650-9.
8. Martin AJ, Marsh HW. Academic resilience and academic buoyancy: Multidimensional and hierarchical conceptual framing of causes, correlates and cognate constructs. Oxford Review of Education. 2009;35(3):353-70.
9. Pinquart M. Moderating effects of dispositional resilience on associations between hassles and psychological distress. Journal of applied Developmental psychology. 2009;30(1):53-60.
10. Nejati Safa A, Larijani B, Shariati B, Amini H, Rezagholizadeh A. Depression, quality of life and glycemic control in patients with diabetes. Iranian Journal of Diabetes and Metabolism. 2007;7(2):195-204.(in Persian)
11. Kralik D, van Loon A, Visentin K. Resilience in the chronic illness experience. Educational Action Research. 2006;14(2):187-201.
12. Tugade MM, Fredrickson BL. Resilient individuals use positive emotions to bounce back from negative emotional experiences. Journal of personality and social psychology. 2004;86(2):320.
13. Rahimi M, Nouri R, Raimi M. The effectiveness of the acceptance and commitment therapy (ACT) approach on quality of life and hemoglobin A1c among patients with type 2 diabetes. International Journal of Medical Investigation. 2019;8(2):61-9.
14. Hayes SC, Luoma JB, Bond FW, Masuda A, Lillis J. Acceptance and commitment therapy: Model, processes and outcomes. Behaviour research and therapy. 2006;44(1):1-25.
15. Hayes SC, Levin ME, Plumb-Vilardaga J, Villatte JL, Pistorello J. Acceptance and commitment therapy and contextual behavioral science: Examining the progress of a distinctive model of behavioral and cognitive therapy. Behavior therapy. 2013;44(2):180-98.
16. Forman EM, Herbert JD. New directions in cognitive behavior therapy: Acceptance-based therapies.2009;77-101.
17. Moyer DN, Murrell AR, Connally ML, Steinberg DS. Showing up for class: Training graduate students in acceptance and commitment therapy. Journal of Contextual Behavioral Science. 2017;6(1):114-8.
18. Connor KM, Davidson JR. Development of a new resilience scale: The Connor-Davidson resilience scale (CD-RISC). Depression and anxiety. 2003;18(2):76-82.

[Downloaded from ijdo.ssu.ac.ir on 2026-11-24]

[DOI: 10.18502/ijdo.v14i1.8728]

19. Green KT, Hayward LC, Williams AM, Dennis PA, Bryan BC, Taber KH, et al. Examining the factor structure of the Connor–Davidson Resilience Scale (CD-RISC) in a post-9/11 US military veteran sample. Assessment. 2014;21(4):443-51.
20. Samani S, Jokar B, Sahragard N. Effects of resilience on mental health and life satisfaction. Iranian Journal of psychiatry and clinical psychology. 2007;13(3):290-5. (in Persian)
21. Shayeghian Z, Hassanabadi H, Aguilar-Vafaie ME, Amiri P, Besharat MA. A randomized controlled trial of acceptance and commitment therapy for type 2 diabetes management: The moderating role of coping styles. Plos One. 2016;11(12):e0166599.
22. Khodabakhshi-Koolaee A, Bahari M, Falsafinejad MR, Shahdadi H. The relationship of quality of life with health literacy in male patients with type II diabetes: a cross-sectional study in HARSIN city, 2015. Journal of Diabetes Nursing. 2016;4(4):10-20. (in Persian)
23. Mirmahdi SR, Razaali M. The Effectiveness of Mindfulness-based Cognitive Therapy on Resilince, Emotion Regulation and Life Expectancy among Women with Diabetes2. Quarterly Journal of Health Psychology. 2019;7(28):167-83.(in Persian)
24. DeNisco S. Exploring the relationship between resilience and diabetes outcomes in African Americans. Journal of the American Academy of Nurse Practitioners. 2011;23(11):602-10.
25. Perveen S, Shahbaz M, Guergachi A, Keshavjee K. Performance analysis of data mining classification techniques to predict diabetes. Procedia Computer Science. 2016;82:115-21.
26. Harris MD. Psychosocial aspects of diabetes with an emphasis on depression. Current Diabetes Reports. 2003;3(1):49-55.
27. Walsh F. Family resilience: Strengths forged through adversity.2012;399-427.
28. Isaacson B. Characteristics and enhancement of resiliency in young people.2012.

[Downloaded from ijdo.ssu.ac.ir on 2026-11-24]

[DOI: 10.18502/ijdo.v14i1.8728]