journal of
Adolescent and Youth Psychological Studies
www.jayps.iranmehr.ac.ir

Fall (December) 2023, Volume 4, Issue 9, 1-9

The effectiveness of acceptance and commitment therapy (ACT) on alexithymia, concern about body image and negative spontaneous thoughts in patients with diabetes in Gorgan city

Sogand Sadat. Naseri[1] & Mansour. Ali Mehdi*[2]

1. M.A., Department of Psychology, Kish International Branch, Islamic Azad University, Kish Island, Iran
2. ***Corresponding Author:** Assistant Professor, Department of Psychology, Tehran Medical Branch, Islamic Azad University, Tehran, Iran

ARTICLE INFORMATION

Article type
Original research
Pages: 1-9

Corresponding Author's Info
Email:
alimehdi.mansoor@gmail.com

Article history:
Received: 2023/02/27
Revised: 2023/05/18
Accepted: 2023/05/29
Published online: 2023/12/01

Keywords:
Acceptance and Commitment Therapy (ACT), Alexithymia, Body Image Concerns, Negative Spontaneous Thoughts, Diabetes.

ABSTRACT

Background and Aim: Diabetes is one of the chronic diseases in the world. Economic growth, development of urban life, change in lifestyle, obesity and weight gain and decrease in activity of people are of special importance in the occurrence of diabetes. The present study was conducted with the aim of the effectiveness of acceptance and commitment therapy (ACT) on dyslexia, concern about body image and negative spontaneous thoughts in patients with diabetes in Gorgan city. **Methods:** The research method was quasi-experimental with a pre-test-post-test design with two experimental groups and a control group. The statistical population of this research included female patients aged 20 to 40 with type 2 diabetes who referred to Deziani Diabetes Clinic in Gorgan city in the summer quarter of 2011, their number was about 300. In the following, 30 patients were screened with Bagby et al.'s aphasia questionnaires (1994), Littleton's (2005) body image concerns, and Kendall and Hallon's (1980) negative spontaneous thoughts using purposive sampling as samples. were selected, and were randomly divided into two experimental (15 people) and control (15 people) groups. The subjects of the experimental group underwent acceptance and commitment therapy for 8 sessions (one 90-minute session per week for two months), and the control group did not receive any treatment. At the end of the treatment sessions, the subjects of both groups answered the mentioned questionnaires again as a post-test. Data analysis in this research was done using SPSS version 20 statistical software in two descriptive and inferential sections (MANCOVA multivariate covariance analysis test). **Results:** The results of data analysis showed that Acceptance and Commitment Therapy (ACT) reduced Alexithymia and its components (difficulty in recognizing emotions, difficulty in describing emotions, externally oriented thinking), body image concerns and Its components (dissatisfaction and shame of the person with his appearance, interference in social functioning), negative spontaneous thoughts and its components (individual incompatibility and desire to change, negative self-concepts / negative expectations, low self-esteem, helplessness) in the subjects of the experimental group in The post-test stage was done. **Conclusion:** It can be concluded that ACT is effective on alexithymia, concern about body image and negative spontaneous thoughts in patients with diabetes.

How to Cite This Article:
Naseri, S. S., & Ali Mehdi, M. (2023). The effectiveness of acceptance and commitment therapy (ACT) on alexithymia, concern about body image and negative spontaneous thoughts in patients with diabetes in Gorgan city. *jayps*, 4(9): 1-9.

Introduction

Diabetes is a condition where the body encounters problems in metabolizing carbohydrates, fats, and proteins, occurring due to the absence of insulin or reduced tissue sensitivity to insulin. Diabetes is among the prevalent chronic diseases globally. Factors such as economic growth, urban lifestyle development, lifestyle changes, obesity, weight gain, and decreased physical activity significantly contribute to the incidence of diabetes (Sharifi, Nazarpour, Davarniya, & Davarniya, 2021). Various factors, including numerous psychological elements, can impact bodily functions, predisposing individuals to both physical and mental illnesses (Zepeda-Gonken, Sanchez-Aragon, & Etié-Etié, 2021).

One factor adversely affecting the mental health of individuals with diabetes is alexithymia, observable in medical and psychiatric diagnoses (Ghahremani Eini Alia, 2021). Alexithymia, a term rooted in the Greek 'alexithymia' meaning the absence of words for emotions, is recognized by difficulties in emotional and mood regulation and emotional inhibition. Originating from psychodynamic concepts, alexithymia conceptually refers to the difficulty in identifying, describing, and objectively thinking about emotions (Saadat Asadi & Valizadeh, 2021). Individuals with alexithymia struggle with recognizing, describing, and expressing their emotions, often due to difficulties in information processing and emotional regulation. Alexithymia is characterized as a cognitive-emotional attribute where individuals, due to a relative inability to understand and analyze their own and others' emotional states, cannot use language effectively to regulate their emotions, hindering their ability to verbally express emotions (Davoudi & Afshari, 2012).

In contemporary society, there is significant cultural-social emphasis on physical attractiveness and fitness. Social pressures and widespread opinions on body structure have led to dissatisfaction with body image and a negative body perception, especially among the youth (Attar, Behnia Asl, Heidari, & Mahmoudi, 2021). Even individuals with a normal physical appearance may excessively fear being unattractive or ugly, a condition known as body image concern. This situation is essentially a psychological disorder characterized by obsessive and excessive preoccupation with an imagined physical flaw (Heidari, 2020). Factors such as physical appearance changes due to chronic diseases like heart and kidney diseases, diabetes, and other issues like body part loss, loss of bodily function, hospitalization, chemotherapy, and surgical changes also contribute to body image concerns (Alipour, 2020).

Research findings have indicated that nearly one-third of individuals with diabetes are diagnosed with psychological problems at certain life stages, significantly impacting their motivation for treatment adherence. Among these, negative automatic thoughts are seen as a transdiagnostic factor in emotional disorders in diabetes patients (Nazari Farsani, 2019). These involuntary, unconscious, irrational, and distressing thoughts often arise during daily stressful events, leading to emotional problems (Artiken, Bizet, & Sahin, 2020). These thoughts are typically distorted and do not accurately represent reality. It is crucial for individuals to be aware of common negative automatic thoughts, as they control many of their reactions and responses. Although these thoughts are a natural part of the human subconscious and are often overlooked, making them hard to identify, they can have long-term effects on an individual's emotions (Nikkhar, 2021).

Unfortunately, diabetes is one of the most common metabolic diseases affecting both the physical and mental well-being of those affected. One of the primary issues in treating diabetes is the excessive focus on biological treatments and insufficient attention to psychological therapies (Matovu, 2020; cited in Ghahremani Eini Alia, 2021). However, studies have shown that psychological treatments are effective in improving the mental state of diabetic patients. The current research uses Acceptance and Commitment Therapy (ACT), a third-wave behavioral therapy. This treatment is a type of cognitive-behavioral therapy that includes a specific process and psychological flexibility, focusing on behavior change (Han & McCracken, 2014). From the perspective of ACT, human suffering is rooted in psychological inflexibility, caused by cognitive fusion and avoidance of experiences. Thus, the desire to embrace experiences while simultaneously coping with them through avoidance is considered harmful (Dixon, 2020).

The primary goal of this approach is for individuals to build a meaningful and fulfilling life, effectively managing the pains, sufferings, and stresses imposed on them. As soon as thoughts, feelings, and memories are labeled and identified, an immediate internal conflict begins, as these signs are perceived as harmful and pathological. ACT alters the relationship between problematic thoughts and feelings, enabling individuals to not only process them as non-pathological but also to learn to perceive them as harmless (Harris, 2019). In other words, this method focuses on enhancing the quality of life, paying less attention to symptoms (Hayes et al., 2013). The effectiveness of ACT in cognitive regulation of emotion (Rostami, Khosravi, & Mansouri Kriani, 2022), anxiety (Mirzaii Dostan et al., 2020), pain severity (Jahangiri, 2020; Scott & McCracken, 2016), depression (Hamidian, Tarabi, Kaviani Charati, Haji Esfandiari, & Rouhani Atashgah Sara, 2022), and improving self-esteem (Anunziata et al., 2016) has been proven in various studies.

Given the challenges diabetic patients face in their daily lives, it is crucial to implement measures and interventions that reduce emotional alexithymia, body image concerns, and negative automatic thoughts. One of the interventions emphasized in both domestic and international research for its effectiveness on chronic patients is Acceptance and Commitment Therapy. The goal of ACT in the current study is to help diabetic patients cope with daily life challenges. Therefore, this research seeks to answer whether ACT impacts alexithymia, body image concerns, and negative automatic thoughts in type 2 diabetes patients.

Method

The research method was a quasi-experimental pre-test and post-test design with an experimental and a control group. The population of this study included female patients aged 20 to 40 years with type 2 diabetes, who visited the Deziani Diabetes Clinic in Gorgan during the summer of 2022, totaling approximately 300 individuals. Initially, patients aged 20 to 40 years with education levels above a high school diploma were asked to respond to the Bagby et al. (1994) Alexithymia Questionnaire, the Littleton et al. (2005) Body Image Concerns Questionnaire, and the Kendall & Hollon (1980) Negative Automatic Thoughts Questionnaire. Subsequently, 30 individuals who scored above the cutoff points of the questionnaires, met the specified entry criteria, and expressed willingness to participate in the research were purposively selected as the sample. They were randomly assigned to the experimental (15 individuals) and control (15 individuals) groups (it should be noted that the subjects of both groups were matched based on demographic information, including age range of 20 to 40 years and educational level of high school diploma and above. Additionally, none of the subjects received a diagnosis of anxiety or depression disorders in the diagnostic interview). The entry criteria for the study included residing in Gorgan; age between 20 to 40 years; educational level of high school diploma or higher; ability to attend 8 treatment sessions; absence of physical, mental, visual, or auditory disabilities; not suffering from chronic mental illnesses (not taking psychiatric medications); volunteering and willingness to participate in the project; not participating in psychotherapy sessions in the past three months; scoring high in the Alexithymia, Body Image Concerns, and Negative Automatic Thoughts questionnaires. The exit criteria from the study included absence from more than two treatment sessions; expressing reluctance to participate in educational sessions; concurrent participation in other treatment programs; having physical, mental, visual, or auditory disabilities; taking psychiatric medications and being under the care of a psychiatrist; scoring low in the Alexithymia, Body Image Concerns, and Negative Automatic Thoughts questionnaires.

Materials

1. Bagby Emotional Ambiguity Questionnaire (1994): Developed by Bagby et al. (1994), this questionnaire consists of 20 items and three subcomponents. Its cut-off point, based on a study by Besharat, Alimardani Soumeh, and Shahmohammadzadeh (2014), is 52, indicating emotional ambiguity for scores above this threshold. In the present study, this cut-off point was also considered to be 52. Scoring is done on a 5-point Likert scale ranging from 'strongly disagree' (1) to 'strongly agree' (5), with items 4, 5, 10, 18, and 19 being reverse scored. Higher scores indicate greater emotional ambiguity. Besharat (2009) reported Cronbach's alpha coefficients of 0.85 for the overall emotional ambiguity score, and 0.82, 0.75, and 0.72 for the sub-scales of difficulty in identifying feelings, difficulty in describing feelings, and externally-oriented thinking, respectively. Concurrent validity of the questionnaire was indicated by a correlation of 0.80 with the Emotional Intelligence Scale. Amerian, Noohi, and Janbozorgi (2021) calculated Cronbach's alpha for the questionnaire as 0.79.

2. Littleton Body Image Concerns Questionnaire (2005): Created by Littleton et al. (2005), this questionnaire includes 19 items across two components: dissatisfaction and embarrassment about one's appearance, and interference in social functioning. Basaknejad and Ghafari (2007) found a

significant correlation coefficient of 0.55 between the Fear of Body Image Scale and the Fear of Negative Evaluation Scale, indicating acceptable validity of this scale. They also reported a Cronbach's alpha reliability of 0.95. Entezari and Alavizadeh (2011), reported an internal consistency of 0.89 using Cronbach's alpha. In the study by Mofakhari, Ashrafifard, and Khorrami (2021), Cronbach's alpha for the total questionnaire score was 0.93. Mohammadi and Sajjadinejad (2012) confirmed the construct validity of the questionnaire. Cronbach's alpha for the total score and the components of appearance dissatisfaction and social functioning interference were 0.81, 0.84, and 0.78, respectively. Scoring is done on a 5-point Likert scale ranging from 'never' (1) to 'always' (5), with scores ranging from 19 to 95. According to studies by Entezari, Alavizadeh (2012), and Basaknejad and Ghafari (2007), a cut-off score of 70 indicates significant body image concern.

3. Kendall and Hollon Automatic Negative Thoughts Questionnaire (1980): Developed by Kendall and Hollon (1980), this questionnaire contains 30 items and four components: personal incompatibility and desire for change; negative self-image/expectations, low self-esteem, and helplessness. Sohrabi (2018) reported a Cronbach's alpha reliability of 0.97. The correlation of this questionnaire with the Beck Depression Inventory indicates its concurrent validity. Kaviani, Javaheri, and Bahirai (2005; as cited in Mandegarian Ahmadabad, 2019) confirmed the convergent and content validity of this questionnaire and reported a test-retest reliability of 0.88 and an internal consistency reliability of 0.97 using Cronbach's alpha. Scoring is done on a 5-point Likert scale ranging from 'never' (1) to 'always' (5), with scores ranging from 30 to 150, where higher scores indicate more automatic negative thoughts.

4. Therapy based on acceptance and commitment: The therapy protocol based on acceptance and commitment taken from the book (Eifert and Forthight, 2005; translated by Faizi, Khajepour and Bahrami, 2019) was implemented according to the table below.

Table 1. Acceptance and commitment therapy

Session 1	Introduction and therapy session instructions: Providing an opportunity for the participants to get to know each other and become familiar with the therapeutic goals.
Session 2	Behavior change and mindfulness: Introduction of potential values and the issue of choice, introduction of behavioral model and the concept of behavior change, mindfulness practice. A) We raise awareness about body posture versus unawareness. B) We ask participants to close their eyes. C) We teach participants mindfulness practice, breathing exercises, and proper breathing in order.
Session 3	Values: Acceptance: a) Completing the values assessment form b) Daily mindfulness practice
Session 4	Clarification of values and goals: Differentiation between values and goals, personal values versus others' values, goal setting and introduction to committed action
Session 5	Defusion: Review of obligations and uniformity of movement, defusion from language threats
Session 6	Committed action: Review of therapy, committed action, self-observation exercises
Session 7	Satisfaction: Awareness and differentiation between primary and secondary distress, commitment and obstacles to forming satisfaction, mindfulness in walking
Session 8	Closing the sessions and conclusion: Clarification of values, negative feedback and consequences, readiness, farewell, post-assessment implementation.

Implementation

After obtaining necessary permissions and visiting the Dezyani Diabetes Clinic in Gorgan, 30 female patients with type 2 diabetes who met the inclusion criteria, scored high on the Bagby et al. (1994), Littleton et al. (2005), and Kendall and Hollon (1980) questionnaires, and expressed a willingness to participate, were purposefully selected and randomly assigned to either the experimental or control group (15 each). Both groups were matched based on demographic information, such as age (20 to 40 years) and education level (diploma and above). Following these procedures, participants in the experimental group were invited to attend sessions at the clinic's diabetes room (arranged in advance with relevant authorities) while adhering to health

protocols such as mask-wearing, social distancing, and hand sanitization. They were briefed about the logic of treatment and research objectives, assured of confidentiality, and informed of their right to withdraw at any time. The treatment sessions, based on the Acceptance and Commitment Therapy (ACT) protocol from Eifert and Forsyth (2005; translated by Faizi, Khajehpour, and Bahrami, 2019), were conducted by the researcher. Each session lasted 90 minutes, once a week for two months. After the treatment sessions, both groups were re-assessed using the same questionnaires as a post-test, and the data were prepared for statistical analysis (due to non-cooperation of participants and time constraints, a follow-up phase was not conducted).

For data analysis in this research, SPSS-20 software and the following statistical methods were used: descriptive statistics such as frequency, percentage, mean, and standard deviation for analyzing scores in both groups during pre-test and post-test phases. Levene's test for equality of variances, Box's M test for homogeneity of covariance matrices, and regression slope test were used as prerequisites for conducting a covariance analysis. The normality of the distribution of variables was assessed using the Kolmogorov-Smirnov test. A Multivariate Analysis of Covariance (MANCOVA) was used to test hypotheses.

Results

In terms of gender, 255 respondents (79.7%) were female and 65 respondents (20.3%) were male. The education of 83 people (25.9 percent) was diploma or lower, 130 people (40.7 percent) had master's degree and bachelor's degree, and 107 people (33.4 percent) had master's degree and doctorate. In terms of age, 165 people (51.9 percent) were between 25 and 35 years old, 115 people (35.9 percent) were between 36 and 45 years old, and 40 people (12.2 percent) were between 46 and 55 years old. Table 1 shows the descriptive statistics, skewness and kurtosis indices to check the normality and validity and reliability tests of the questionnaire.

Table 2. Descriptive information of Alexithymia variable and its components in two groups

Variable	Control (N=15)				Experimental (N=15)			
	Pre-test		Post-test		Pre-test		Post-test	
	M	SD	M	SD	M	SD	M	SD
Body Image Concern	70.800	5.608	70.333	5.727	71.466	5.817	62.533	6.610
Negative automatic thoughts	106.266	10.686	104.133	6.937	103.600	5.025	86.800	4.091
Alexithymia	66.600	7.528	67.200	7.272	65.200	4.475	46.266	2.963

According to the results, the frequency percentage in the control group for age ranges 20-25, 25-30, 30-35, and 35-40 years were 20%, 20%, 46.7%, and 13.3%, respectively, and in the experimental group for the same age ranges were 26.7%, 13.3%, 40%, and 20%, respectively. Scores indicate that the distribution of scores for emotional ambiguity, body image concerns, and automatic negative thoughts in both the control and experimental groups were normal in both pre-test and post-test stages. Based on Levene's F value for equality of variances in both groups, it was found that variances of the variables are equal, fulfilling a condition for conducting covariance analysis. Table 2 indicates that the value (F=1.277) is not significant ($p<0.05$), hence it can be concluded that the covariances in both groups are homogeneous, meeting another condition for conducting covariance analysis. The observed F-value for the interaction of group and pre-test for all research variables (except for the subcomponent of difficulty in identifying feelings) is significant, indicating that the assumption of homogeneity of regression slopes is not met. However, given the fulfillment of Levene's F, normality of data distribution, and Box's M test, covariance analysis was used for data analysis.

Table 3. Multivariate analysis of covariance of post-test scores of Alexithymia, body image concern and negative automatic thoughts and pre-test variance scores

Source	Variable	df	SS	MS	F	sig	η2
Group	Alexithymia	1	2779.741	2779.741	262.697	0.000	0.91
	Body image concern	1	487.911	487.911	43.228	0.000	0.63
	Negative automatic thoughts	1	1824.137	1824.137	147.576	0.000	0.85
Pre-test	Alexithymia	1	256.393	256.393	24.230	0.000	0.49
	Body image concern	1	778.108	778.108	68.939	0.000	0.73
	Negative automatic thoughts	1	472.123	472.123	38.196	0.000	0.60
Error	Alexithymia	25	264.539	10.582			
	Body image concern	25	282.174	11.287			
	Negative automatic thoughts	25	309.017	12.361			

As observed in Table 3, the effect of treatment based on Acceptance and Commitment Therapy (ACT) on emotional ambiguity (F=262.697, P<0.001), concerns about body image (F=43.228, P<0.001), and automatic negative thoughts (F=147.576, P<0.001) is statistically significant. The eta-squared value also indicates that 91% of the variance in emotional ambiguity, 63% of the variance in body image concerns, and 85% of the variance in automatic negative thoughts are explained through Acceptance and Commitment Therapy.

Conclusion

Based on the results obtained from data analysis, Acceptance and Commitment Therapy (ACT) led to a reduction in emotional ambiguity, body image concerns, and automatic negative thoughts in the subjects of the experimental group during the post-test phase. These findings are consistent with the research by Ghermani Ini Alia (2021), Rava (2021), Shirazipur (2021), Yasi and Mirshakarian Babaki (2021), Karimi Dardashti (2019), Tork and Sajjadian (2019), Ruíz et al. (2020), and Fogelkvist et al. (2020).

In explaining the impact of Acceptance and Commitment Therapy in reducing emotional ambiguity, concerns about body image, and automatic negative thoughts, it can be said that this method, through the technique of acceptance or willingness to experience hardship without attempting to control it, leads to a better understanding and endurance against personal, familial, and social life challenges. Consequently, avoidance, distress, and fear of challenges, and eventually emotional ambiguity, negative thoughts, and body image concerns are reduced (Norouzi, Zargar, & Norouzi, 2017). The main goal of Acceptance and Commitment Therapy is to create and increase flexibility. The ability to choose a more suitable option among different options increases psychological well-being and peace, and helps individuals to cope adaptively with stressors (Tahmasbizadeh, Kooshki, Nemat Tavousi, & Owraki, 2019). Indeed, Acceptance and Commitment Therapy aims to shift the focus of clients from changing and reducing symptoms to having a meaningful life (Hawon, Siaworuchi, & Horl, 2010). Daily experience logging tasks, daily willingness logs, daily clean and unclean distress logs, and training in reason-giving exercises and willingness to thoughts and feelings through mindfulness, which are among the exercises of Acceptance and Commitment Therapy, help individuals maintain their mental health. Therefore, it can be said that Acceptance and Commitment Therapy has been able to improve the psychological status of patients with diabetes. Thus, the aim of this treatment, by emphasizing greatly on individuals' willingness to experience internal events, is to help them experience their disturbing thoughts simply as a thought and become aware of the inefficiency of their current program, and instead of responding to it, engage in what is important in life and aligns with their values. In this study, the clients, by replacing themselves as the context, were able to simply experience unpleasant internal events in the present and separate themselves from reactions, memories, and unpleasant thoughts. In fact, the goal was to increase the psychological flexibility of these individuals. Based on this, the main advantage of this method, compared to other psychotherapies, is the consideration of motivational aspects along with cognitive aspects, for a more impactful and lasting treatment efficacy. Acceptance and Commitment Therapy guides clients to see their thoughts and emotions as separate from themselves, allowing therapists to correct relational frameworks and negative cognitive states. The goal of Acceptance and Commitment Therapy is to increase the full acceptance of a wide range of objective experiences, including disturbances, thoughts, beliefs, feelings, and sensory perceptions, ultimately guiding individuals towards improving their quality of life. In fact, the Acceptance and Commitment Therapy approach focuses on acceptance and then change and amendment of the individual's relationship with their thoughts. In analyzing this finding, it should be said that the acceptance component in Acceptance and Commitment Therapy enables the client to feel unpleasant internal experiences without trying to control them, making these experiences seem less threatening and reducing their impact on the individual's life (Marmarchi Nia & Zoghi Paydar, 2016).

The limitations of the present study were as follows: Due to the research being conducted on women with diabetes living in the city of Gorgan, generalizing the results to diabetic patients in other cities and provinces should be done cautiously. The sole use of self-report measurement scales, the implementation of the

treatment, and the related evaluations by the therapist may introduce bias in the findings. The present research design is quasi-experimental; therefore, due to the lack of control over potential intervening variables, the results obtained may be less valid compared to those of a full experimental design. The subjects may have been influenced by the testing conditions due to repeated responses to a questionnaire (pre-test and post-test), which may have reduced the accuracy of their responses. Concurrent events during the research that may have affected the results (lack of motivation and boredom of the subjects, illness of the subjects, etc.). Obstacles and problems arising from coordinating and gathering diabetic patients for training.

The data of the present study were obtained using self-report tools; in future research, other data collection methods such as interviews and observations should also be used. One of the influencing factors in the effectiveness of educational programs is the regular completion of homework tasks, which participants forget for various reasons. It is suggested that future researchers use appropriate equipment such as sending text messages or alternative methods to encourage participants to complete their tasks on time. The current research was conducted cross-sectionally and in a short and specific time frame; it is suggested that future researchers conduct longitudinal studies to more accurately examine the dimensions of emotional ambiguity, concerns about body image, automatic negative thoughts, and generally the psychological status of patients with diabetes. It is suggested that in future research, demographic variables such as economic status, religion, occupation, etc., be controlled. It is suggested that in future research, subjects with education levels below a diploma, a wider age range, and individuals with other diseases be studied.

In the present study, the control group did not receive any treatment; it is suggested that in future research, treatment be considered for the control group as well. Other psychotherapy approaches such as logotherapy, reality therapy, dialectical behavior therapy, cognitive-behavioral therapy, and compassion will be able to enrich the research literature in this field. Given the results obtained from this research and the confirmation of the effectiveness of Acceptance and Commitment Therapy in reducing emotional ambiguity, concerns about body image, and automatic negative thoughts in diabetic patients in the city of Gorgan, it is recommended that more attention be paid to psychological treatments by relevant institutions and organizations. In this regard, designing and making available educational and counseling packages of Acceptance and Commitment Therapy for social workers, psychologists, and nurses for self-help of clients is recommended. Acceptance and Commitment Therapy should be continuously taught in official governmental and non-governmental centers such as medical universities, welfare organizations, and relevant institutions to diabetic patients, as a step towards improving their mental and emotional status. It is suggested that this therapeutic approach be implemented in individuals who have recently been diagnosed with diabetes in order to prevent the occurrence of various psychological problems and diseases in the agendas of treatment centers and relevant institutions.

Conflict of Interest

According to the authors, this article has no financial sponsor or conflict of interest.

References

Alipour, M. (2019). The effectiveness of acceptance and commitment therapy, emotion-focused cognitive behavioral therapy, and couples coping skills education on body dysmorphic disorder, health anxiety, mental well-being, and health-promoting lifestyle in women with breast cancer. (Doctoral dissertation). Urmia University. (In Persian)

Allahverdi, E. (2018). Investigating the role of emotional dysregulation, self-differentiation, and interpersonal problems in predicting marital distress in pregnant women in Nishapur city (Master's thesis, University of Gilan, Iran). (In Persian)

Amerian, E., Nouhi, S., & Janbozorgi, M. (2021). Evaluating Ali's personality model on paternal personality and emotional dysregulation of adolescent girls: The mediating role of ineffective parenting styles. Journal of Psychological Growth, 1(8), 12-1. (In Persian)

Annunziata AJ, Green JD, Marx BP. (2015). Acceptance and commitment therapy for depression and anxiety. *Encyclopedia of Mental Health*. New York: Williams & Wilkins.

Atar, S., Behnia Asl, F., Heydari, Z., & Mahmoudi, N. (2021). The effectiveness of cognitive-behavioral therapy (CBT) on increasing sexual intimacy and reducing body image anxiety in women with sexual dysfunction (sexual aversion) referred to counseling centers in Tehran. Advances in Behavioral Sciences, 5(43), 15-1. (In Persian)

Basaknejad, S., & Ghaffari, M. (2007). The relationship between fear of body disfigurement and psychological disorders among university students. Journal of Psychological Sciences, 1(2), 187-179. (In Persian)

Besharat, M. A. (2009). Emotional dysregulation and interpersonal problems. Journal of Educational and Psychological Studies, 10(1), 145-129. (In Persian)

Besharpour, S., Alimardani Soomeh, S., & Shah Mohammadzadeh, Y. (2015). The role of temperament and emotional expression in predicting somatic symptoms in the university students of Mohaghegh Ardabili. Journal of Rafsanjan University of Medical Sciences, 13(10), 972-961. (In Persian)

Davoodi, I., & Afshari, A. (2011). The relationship between alexithymia and personality traits among university students. Journal of Clinical Psychology and Counseling Research, 1(2), 150-137. (In Persian)

Dixon, M.R., Hayes, S.C., Stanley, C., Law, S., & al-Nasser, T. (2020). Is Acceptance and Commitment Training or Therapy (ACT) a Method that Applied Behavior Analysts Can and Should Use? *The Psychological Record*, 70:559–579.

Entezari, S., & Alavizadeh, M. R. (2012). The relationship between fear of body disfigurement and suicide ideation among women and men referring to clinics of dermatology, hair and weight in Tehran city. Jundishapur Journal of Health Sciences, 1(2), 100-90. (In Persian)

Ertekin, H., Beyazit, F., Sahin, B. (2018). Evaluation of psychiatric symptoms and automatic negative thoughts among menopausal women. *Medicine Science*, 2(2), 1-5.

Fogelkvist, M., Gustafsson, S. A., Kjellin, L., & Parling, T. (2020). Acceptance and commitment therapy to reduce eating disorder symptoms and body image problems in patients with residual eating disorder symptoms: A randomized controlled trial. *Body Image*, 32, 155-166.

Ghorbani Ini, A., & Sagari, S. (2021). The effect of ACT therapy on experiential avoidance, emotional dysregulation, and regulation in patients with type 1 diabetes. (Bachelor thesis). Khateem Non-Profit Higher Education Institute. (In Persian)

Hamidian, M. S., Torabi, A., Kavianinejad, S., Haji Esfandiyari, S., & Rouhani Etagh Sera, M. (2022). The effectiveness of cognitive-behavioral therapy (CBT) and acceptance and commitment therapy (ACT) on reducing depression and hopelessness in elderly people with empty nest syndrome. Quarterly Journal of Counseling and Psychotherapy, 11(42), 15-1. (In Persian)

Hann, K. E. J., & McCracken, L. M. (2014). A systematic review of randomized controlled trials of Acceptance and Commitment Therapy for adults with chronic pain: Outcome domains, design quality, and efficacy. *Journal of Contextual Behavioral Science*, *3*(4), 217-227.

Harris, R. (2019). *ACT made simple: An easy-to-read primer on acceptance and commitment therapy* (2nd ed.). New Harbinger Publications.

Haydari, A. (2019). The relationship between self-esteem and body image concern with the quality of life among female students of Islamic Azad University in Gorgan city (Master's thesis, Shams Gonbadi Institute of Higher Education, Iran). (In Persian)

Hayes, S. C., Levin, M. E., Plumb-Vilardaga, J., Villatte, J. L., & Pistorello, J. (2013). Acceptance and commitment therapy and contextual behavioral science: Examining the progress of a distinctive model of behavioral and cognitive therapy. *Behavior therapy*, *44*(2), 180-198.

Heaven PCL, Ciarrochi J, Hurrell K.(2010). The distinctiveness and utility of a brief measure of alexithymia for adolescents. Personality and Individual Differences, 49(3):222-7.

Ifert, G., & Forsyth, J. (2005). Acceptance and commitment therapy (ACT) for anxiety disorders (A. Feizi, M. Khajepour, & S. Bahrami, Trans.). Tehran, Iran: Ibn Sina Publications. (In Persian)

Jahangiri, M. M. (2018). The effectiveness of acceptance and commitment therapy on reducing pain severity in patients with multiple sclerosis. Journal of Clinical Psychology and Counseling Research, 1(2), 127-116. (In Persian)

Karimi Dardashti, Z. (2019). The effectiveness of acceptance and commitment therapy on pain

control, body image, and cognitive emotional regulation in women with breast cancer. (Master's thesis). Shahid Bahonar University of Kerman. (In Persian)

Marmarchi Nia, M., & Zoghi Paydar, M.R. (2017). The effectiveness of acceptance and commitment therapy on hope and happiness in girls under the coverage of welfare. Journal of Applied Psychology, 2(42), 174-157. (In Persian)

Mirzaei Doustan, Z., Zarghar, Y., & Zandi Payam, A. (2019). The effectiveness of acceptance and commitment therapy on death anxiety and mental health in women with HIV in Abadan. Iranian Journal of Psychiatry and Clinical Psychology, 25(1), 12-5. (In Persian)

Mofakheri, A., Ashrafi Fard, S., & Khorami, M. (2021). Structural model of the relationship between body image anxiety, obsessive beliefs and body management in individuals seeking cosmetic surgery. Journal of Health Psychology, 1(2), 140-121. (In Persian)

Mohammadi, M., & Kurd, B. (2019). Predicting anxiety in students based on emotion regulation difficulties and negative automatic thoughts. Journal of Educational Strategies in Medical Sciences, 12(1), 6-1. (In Persian)

Nazari Farsani, A. (2018). Predictive role of negative repetitive thoughts, emotion regulation strategies, and self-care on treatment acceptance and adherence in patients with type-2 diabetes. (Master's thesis). Kharazmi University. (In Persian)

Nikkar Ghadsiyeh, G. (2021). Comparison of self-criticism, negative emotions, and negative automatic thoughts in injured women and normal women of Mashhad. (Master's thesis). Payame Noor University of Ferdows. (In Persian)

Rawaa, N. (2021). The effectiveness of acceptance and commitment therapy on anxiety sensitivity and emotional dysregulation among nurses in the COVID-19 ward. Proceedings of the 7th National Conference on Modern Human Science and Social Studies, Tehran, Iran. (In Persian)

Rostami, M., Khosravi, F., & Mansoori Karyani, R. (2022). The effectiveness of group therapy based on acceptance and commitment therapy on cognitive emotion regulation, psychological well-being and quality of life of elderly people. Riyaush Psychology, 1(4), 100-90. (In Persian)

Ruiz, F. J., Luciano, C., Flórez, C. L., Suárez-Falcón, J. C., & Cardona-Betancourt, V. (2020). A Multiple-Baseline Evaluation of Acceptance and Commitment Therapy Focused on Repetitive Negative Thinking for Comorbid Generalized Anxiety Disorder and Depression. *Frontiers in*

Saadat Asadi, M., & Valizadeh, M. (2021). The effectiveness of acceptance and commitment therapy on emotional dysregulation and self-differentiation in married women. Proceedings of the First National Conference on Psychological Pathology and New Methods of Treatment, Tehran, Iran. (In Persian)

Scott, W., & McCracken, L. M. (2015). Psychological flexibility, acceptance and commitment therapy, and chronic pain. *Current Opinion in Psychology*, *2*, 91-96.

Sherifi, G., Nazarpour, D., Davarnia, M., & Davarnia, R. (2021). The effectiveness of positive psychology therapy on mental well-being of obese women with type 2 diabetes. Journal of Psychological Sciences, 20(97), 102-89. (In Persian)

Shirazipur, M. M. (2021). The effectiveness of acceptance and commitment therapy on reducing cognitive fusion and body image concern in elderly people with depression. Journal of Mental Health Principles, 24(1), 8-1. (In Persian)

Tahmasbizaadeh, B., Koushki, S., Na'emat Tavousi, M., & Oraki, M. (2020). The effectiveness of acceptance and commitment therapy on emotional dysregulation and interpersonal problems in men with substance use disorders. Journal of Behavioral Sciences Research, 18(4), 518-510. (In Persian)

Turk, A., & Sajadian, E. (2019). The effect of acceptance and commitment therapy on psychological inflexibility, negative automatic thoughts, and depression in mothers with children suffering from cerebral palsy. Journal of Child Mental Health, 6(4), 12-1. (In Persian)

Yasi, F., & Mirshakarian Babaki, P. (2021). The effectiveness of acceptance and commitment therapy on automatic negative thoughts in divorced women in Tehran. In the First National Congress of Psychotherapy in Iran, Ardabil. (In Persian)

Zepeda-Goncen G.D., Sánchez-Aragón R., & Athié-Athié A. J. (2021) Effects of Loneliness, Rumination, and Stress on Healthy Behaviors of People with Diabetes Regarding Their Ability to Receive Support and Self Confidence. In: Sánchez-Aragón R. (eds) Diabetes and Couples. Springer, Cham.