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Comparing the Effectiveness of Compassion focused therapy and Cognitive Behavioral Therapy on Emotional Schemas and Resilience in Patients with Diabetes

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Background: Nowadays, comparing the effectiveness of treatment methods to reduce mental problems in patients with diabetes is of great interest to different psychologists.

Objectives: This study aimed to compare the effectiveness of compassion-focused therapy and cognitive behavioral therapy in emotional schemas and resilience in diabetic patients referred to Pasteur Hospital in Bam.

Materials & Methods: The research method was semi-experimental with pre-test, post-test, and follow-up design. The statistical population of this study included all diabetic patients referred to Pasteur Hospital in Bam in the second half of 2018 (152 patients). From the statistical population, 45 patients were selected by simple random sampling and randomly divided into three groups (cognitive behavioral therapy group, compassion-focused therapy, and control group). Before and after training, the subjects responded to Conor and Davidson's resilience questionnaires (2003) and Leahy's emotional schemas questionnaire (2009). Data were analyzed using Multivariate analysis of covariance by spss.22.

Results: The findings of this study showed that compassion-focused therapy and cognitive behavioral therapy improve emotional schemas ($P<0.001$) and increase resilience ($P<0.001$). The effect of compassion-focused therapy was greater than cognitive-behavioral and maintained its effectiveness over time ($P<0.001$).

Conclusion: It can be concluded that compassion-focused therapy had a greater effect on improving emotional schemas and increasing resilience in patients with type 2 diabetes.

Keywords: Cognitive-behavioral therapy, Emotions, Diabetes Mellitus.

Introduction

The progressive increase in the incidence and prevalence of chronic diseases around the world, the high mortality rate and the increasing cost of caring for these patients, and especially the integral role of psychological factors in the onset, continuation, and exacerbation of the symptoms of these patients, has led to more emphasis on psychological aspects (1) and increasingly on the necessity of using counseling centers and psychology techniques along with physical interventions because Consultation and its new treatment methods can effectively reduce psychological symptoms in chronic patients, which is also considered in the treatment standards recommended by the American Diabetes Association (2). Diabetes mellitus is a metabolic disorder in the body whose prevalence is constantly increasing. It is estimated that there are approximately 285 million diabetic patients worldwide, approximately 70% of whom belong to developing countries (3).

Resilience is a phenomenon that occurs naturally and refers to a dynamic process in which humans show positive adaptive behavior when faced with unpleasant situations or traumas (4). This trait is supported by one's inner ability and social skills, and interaction with the environment develops and is a positive characteristic (5). Resilience is defined as a positive adaptation in response to unpleasant situations and individual differences in reaction and coping with difficult situations (6). Resilience refers to the process of returning a person to normal function after experiencing a stressful or distressing event (7). Therefore, a resilient person processes the unpleasant situation more positively and considers himself capable of dealing with it. Also, researchers believe that resilience is a kind of self-restorative with positive emotional, emotional, and cognitive outcomes (8). Studies have shown that in stressful situations, those with high resilience have more mental health than those with lower tenacity, so resilience has a direct relationship with positive emotions and has an inverse relationship with negative emotions (9). Experiencing emotions like that helps people cope better with everyday stress. Therefore, people who experience positive emotions are probably more resistant and resilient to difficult events (10). The concept of emotion in evidence-based psychotherapy, especially in cognitive-behavioral psychotherapy, has become more important in recent years (11). These theories are based on the principle that schema and

attitude toward emotion may cause different changes in the individual (12).

Leahy has presented his emotional schema model based on the concept of emotional processing and was inspired by the metacognitive model of emotions. He believes that emotional disorders are often due to a person's assessment and interpretation of their emotions and strategies used to deal with these emotions. Emotional schemas refer to the designs, methods, and strategies used by a person in response to an emotion. The emotional schemas model refers to the design, methods, and strategies used by a person in response to an emotion (13). The model of emotional schemas indicates that people may differ in how they conceptualize their emotions, or in other words, people have different schemas about their emotions. These schemas reflect how people experience emotions and believe that they are looking to evoke unpleasant emotions about the appropriate plan for action or how to act against such emotions in mind, in the model of Leahy emotional schemas when experiencing an unpleasant emotion, a set of strategies and processes of interpretation are used. The first step when it emerges is to pay attention to that excitement, which can include both attention and labeling of emotions. The second step in the Leahy model is cognitive and emotional avoidance of emotion. This avoidance can be both natural and sickly dissociation, fun and drug and alcohol consumption, etc., occurs (14). The specific value of the emotional schemas model is that it directly targets the conceptualization and measures of the patient about unpleasant emotions. In general, this model is a form of metacognitive therapy that helps the patient identify his theory about how emotions work, the length of the course and the controllability of emotions, faulty measures to manage emotions and problematic beliefs, and strategies for interpreting judgment and controlling their emotions. Also, this model suggests that the patient's motivational problems may reflect more pervasive problematic views about unpleasant emotions (15).

Since cognitive-behavioral therapy (CBT), including cognitive training in medical diseases, can reduce the need to use medical abstinence services and increase the mental health of patients, this trend is particularly important for medical and chronic diabetes in general (16). Therefore, resilience has been considered in recent decades as one of the main character structures for understanding motivation, emotion, and behavior. Resilience is the ability to match the control level according to environmental conditions. In the field of human behavior, resilience is often considered as a characteristic associated with the character, personality, and ability to cope and implies the strength, flexibility, ability to dominate or return to normal after exposure to stress and severe challenge. As a result of this adaptive flexibility, people with higher resilience have higher self-confidence are more likely to experience positive emotions in their lives, and are far from anxiety sensitivities (17).

One of the factors associated with adherence therapy is compassion-focused therapy (CFT). People who do not experience negative events in life generally have more unkind and critical behavior in comparison with their favorite people in the same situation. Self-compassion, that is, people have the same kindness and care they have for others while experiencing hardships. Studies have also shown the role of compassion in the field of physical health. For example, compassion itself plays a role in reducing immune and behavioral responses due to anxiety sensitivities, reducing anxiety sensitivities in HIV patients, reducing unsafe sexual behaviors and adaptive responses to HIV, increasing health-promoting behaviors, and more positive responses to aging (18). The CFT focuses on four areas of previous and historical experiences, basic fears, solutions for feeling safe and unforeseen consequences, and outcomes (19). The construct of compassion-focused therapy is based on an evolutionary approach to psychological functions. Based on this approach, motivations and capabilities of compassion are associated with evolved brain systems that are the basis of attachment, altruism, and kindness behaviors. The natural function of compassion is to create love behaviors, provide opportunities for togetherness, security, relief, participation, encouragement, and support (20).

Objectives

Therefore, this study aimed to compare the effectiveness of compassion-focused therapy and cognitive behavioral therapy in emotional schemas and resilience in diabetic patients.

Methods

The research method was semi-experimental with pre-test, post-test, and follow-up design. The statistical population of this study included all diabetic patients referred to Pasteur Hospital in Bam in the second half of 2018 who met the inclusion criteria with a total of 152 patients. The sampling method was simple random sampling. From the statistical population, 45 people were selected and randomly divided into three groups (cognitive behavioral therapy group, compassion-focused therapy, and control group). The required sample size was calculated 45 in total based on effect size= 0.40, α=0.95, 1-β (err prob) = 0.80 test power and 10% loss for each group. Ethical considerations of this study were as follows: Code was used to protect personal information in questionnaires. At first, oral explanations about the research and its objectives were given to the subjects and they participated in the study with informed consent. Participants also gave their consent in writing. The process of conducting the research was that at first, by accepting cooperation from Pasteur Hospital of Bam city for conducting research and preparing the list of all those who met the inclusion criteria (152 people), they were invited to participate in a briefing, of which 64 people participated in the briefing, among which 45 were selected by simple random method to participate in the research.

Leahy Emotional Schemas Questionnaire (2002): Leahy (21) defined emotional schemas as patterns, methods, and strategies used in response to an emotion. The purpose of emotional schemas in this study is the score that the individual obtains in the Leahy Emotional Schemas Scale and its fourteen dimensions (confirmation, comprehension, guilt, simplification of emotions, higher values, lack of control, stiffness, rationality, continuity, agreeableness, acceptance of emotions, rumination, expression of emotions and blame of others). This scale has options in the Likert spectrum, which is scored from one to six. The higher the score of the individual on this scale, the more negative schemas the person has. The questionnaire has 28 questions in the range of 6 degrees (21). Its validity and reliability have been confirmed in internal studies such as the Morvaridi et al study (22), and its reliability was 0.81 in Cronbach's alpha coefficient.

Connor and Davidson Resilience Questionnaire (2003): Connor and Davidson Resilience Questionnaire was prepared in 2003 by reviewing research resources from 1991-1979 in the field of resilience. Conor and Davidson's resilience questionnaire is 25, which is scored on a Likert scale between zero (completely incorrect) and five (always true). The rated options on this scale are as follows: completely incorrect = 0 rarely = 1 sometimes correct = 2 often correct = 3 always correct = 4. So the range of test scores is between 0 and 100. Higher scores indicate more resilience in the subject. The reliability coefficient obtained from the test-re-test was 0.87 in a 4-week interval (23). Derakhshanrad et al (24) used Cronbach's alpha method to determine the reliability of the Conor and Davidson resilience scale and reported a reliability coefficient of 0.89.

Table 1 - Description of the content of compassion-based therapy sessions

Sessions	Goal	Content
1	Familiarity with the general principles of treatment based on cutting	Basic familiarity, communication, familiarity with general concepts of self-compassion and empathy
2	Familiarity with self-critical behavior and thoughts	Self-critical education and its types, encouraging subjects to examine their personality as self-critical, expressing the causes of self-criticism and its results, providing strategies to reduce self-criticism
3	Accepting mistakes and forgiving yourself	Teaching acceptance of mistakes without judgment, explaining the reasons for making mistakes, expressing disadvantages and messages of non-forgiveness, providing solutions for self-forgiveness at the time of the error
4	Understanding and being able to endure difficult situations	Mindfulness training and its activities along with physical checking and training, training how to tolerate problems and what to do with them, teaching failure acceptance, nurturing, and understanding that others also have defects and problems.
5	Self-appreciation	Self-worth training and its advantages, expressing the disadvantages of low self-esteem and self-esteem, teaching methods to strengthen the sense of self-worth
6	Creating pleasant feelings	Teaching compassionate images and relaxation through mental imagery (color image, location, and compassion features) teaching styles and methods of expressing compassion and applying these methods in daily life
7	Familiarity with compassion behavior	Teaching concepts of compassion such as wisdom, attention, logical thinking, warmth, support, and kindness, teaching self-compassion traits such as motivation, sensitivity, empathy, and kindness
8	Identify conflicting emotions	In this exercise, each person arranges conversations between different dimensions of his or her existence and communicates with all three parts of his criticism, criticism, and compassion.
9	Self-understanding and accepting	Teaching the patient to write a sympathetic letter to himself because of the mistake they made, they write to themselves by a sympathetic character, and the lack of changes they feel about themselves.
10	Browse taught topics	Receiving feedback from group members about the principles taught, reviewing, and summing up past materials

Table 2- Description of the content of cognitive-behavioral group therapy sessions

Sessions	Goal	Content
1	Familiarity with the group's goals	Familiarity with the training course, meeting regulations, accurate definition of cognitive-behavioral therapy
2	Categorization, beliefs and identify negative self-thoughts	Identifying possible resistances and their prevention methods, relaxation practice, writing life events based on sequence A (event), B (negative thoughts), C (outcome)
3	Positivity and positive thinking	Review of the task of the previous session, educational lecture A: thought B injection: familiarity with vertical arrow method, use of positive emphasis phrase
4	Degree of belief in beliefs	Reviewing the assignment of the previous session, educational lecture A: Beliefs can be changed B: test beliefs, analyze reality, draw how negative beliefs are communicated together
5	Cognitive Map	Reviewing the assignment of the previous session, educational lecture A: Preparing the main list of beliefs B: cognitive map, the impact of positive thoughts and beliefs
6	Revisionand changing beliefs	Reviewing the assignment of the previous session, educational lecture A: Accepting and accepting that negative beliefs and thoughts can be changed, and people can reconsider beliefs, test beliefs, analyze reality
7	Positive Thinking	Reviewing the task of the previous session, educational lecture A: usefulness analysis B: analysis of consistency, replacing negative thoughts with positive thoughts and beliefs and degree of belief in positive beliefs
8	Logical Analysis	Reviewing the assignment of the previous session, educational lecture A: a logical analysis of all schemas, both conditional and definitive
9	Hierarchy of opposing belief	Review of the assignment of the previous session, educational lecture A: Preparing hierarchy B: the opposite belief
10	Optional cortical inhibition	Review of the task of the previous session, Educational Lecture A: Perceptual Change B: Optional Cortical Inhibition
11	Punishment and Reward	Reviewing the assignment of the previous session, lecture A: self-punishment-self-rewarding B: the maintenance method
12	Final Summing Up	Reviewing the task, reviewing a program for follow-up and evaluation after treatment, closing program

The data analysis method is used in two parts of descriptive statistics: Tables of frequency and central indicators and diversion indicators such as mean and standard deviation. Also, the repeated measure ANOVA method was used to compare quantitative variables between the three groups to make the inferential analysis. The above analyses were performed using SPSS.22 software.

Results

The mean age (SD) age in the CBT group was 47.14 (9.87), in the CFT group was 45.84 (10.11) and in the control group was 46.14 (10.15). There was no significant difference between the three groups in terms of age (P>0.05).

Table 3: Mean and standard deviation of the studied variables pre-test and post-test of compassion focused therapy, cognitive-behavioral, and control groups

Statistical Indicators	Groups	Pre-test		Post-test		Follow-up	
		M	SD	M	SD	M	SD
Resiliency	CFT	43.22	2.19	59.73	2.07	60.07	**2.31**
	CBT	44.29	2.61	53.57	2.35	54.17	**2.29**
	Control	43.10	2.44	44.	2.21	45.02	**2.67**

				70			
Emotional schemas	CFT	88.23	4.96	71.46	4.53	71.33	**4.18**
	CBT	88.91	4.49	78.63	4.72	78.93	**4.41**
	Control	89.01	4.29	84.18	4.28	85.17	**4.67**

The results of Levene's test for equality of variance errors showed that since the calculated F level of variables is more than 0.05, the default variance parity is confirmed. Since the MBox test was not significant for any of the research variables, the homogeneity of variance-covariance matrices was correctly observed. Kolmogorov-Smirnov test was used to determine the normality of the scores. Considering that the significance levels in each pre-test and post-test were more than 0.05. Data distribution is normal in all three groups.

Table 4: Results of Analysis of Variance for Repeated Measurement of Emotional Schemas in Compassion focused therapy, Cognitive Behavioral and Control Groups

Source	SS	Df	MS	F	P-value	Eta
Pre-test	758.13	1	758.13	11.26	0.011	**0.12**
Group	4103.37	2	2051.69	39.58	0.008	**0.39**
Error	9147.69	41	223.11			

After reviewing the assumptions of repeated measure ANOVA, repeated measure ANOVA was used to investigate the effect of compassion-focused therapy and cognitive behavioral therapy on emotional schemas. The results of this table show that considering the significance level of the studied tests, which is less than 0.05, this hypothesis is confirmed. Eta coefficient shows that about 39% of the differences in emotional schema scores are related to the effect of treatment methods.

Table 5: Comparison of paired difference between mean scores of emotional schemas in compassion-focused therapy, cognitive-behavioral, and control groups

Groups	Mean difference	P-value
CBT-Control	6.55	0.001
CFT-Control	12.72	0.001
CBT-CFT	6.17	0.001

Table 6: Results of Repeated Measures of Resilience Variance in Compassion focused therapy, Cognitive Behavioral and Control Groups

Source	SS	Df	MS	F	P-value	Eta
Pre-test	4069.77	1	4069.77	15.57	0.008	**0.14**
Group	2673.01	2	1336.51	42.09	0.003	**0.42**
Error	5027.31	41	122.62			

After reviewing the assumptions of repeated measure ANOVA, repeated measure ANOVA was used to investigate the effect of compassion-focused therapy and cognitive behavioral therapy on resilience. The results of this table show that considering the significance level of the studied tests, which is less than 0.05, this hypothesis is confirmed. Eta coefficient shows that 41% of the differences in resilience scores are related to the effect of treatment methods.

Table 7: Comparing the Paired Difference between Mean Resilience Scores in Compassion focused therapy, Cognitive Behavioral and Control Groups

Groups	Mean difference	P-value
CBT-Control	8.87	0.001
CFT-Control	15.03	0.001
CBT-CFT	6.16	0.001

Discussion

This study aimed to compare the effectiveness of compassion-focused therapy and cognitive behavioral therapy in emotional schemas and resilience in diabetic patients. Eta coefficient shows that about 39% of the differences in emotional schema scores are related to the effect of treatment methods. Based on the results, compassion-focused therapy, cognitive-behavioral

groups, and the control group showed the highest difference in emotional schema scores, respectively. Yeganeh Rad et al. (25) confirmed the effect of schema therapy and compassion-focused therapy in resiliency and ambiguity tolerance in divorce-seeking women. Mohammad Aminzadeh et al. (26) approved the prediction of perceived empathy based on emotional schemas and resilience in mothers with physically disabled children.

Emotional schemas are psychological structures that shape one's personality and affect interaction with others, emotional experience, and interpretation of people's reactions. During childhood, emotional schemas, such as Kudak's learnings for emotional interaction and regulation, grow through interactions with important caregivers. Through basic activities such as playing and feeding Kodiak, it begins to experience emotions in the environment and to deal with others. Repetition of inter-individual interactions of this type helps Kodek create a unique emotional personality and paves the way for effective interaction and hope for inter-individual communication in the future (27). In compassion-focused therapy, one finds that his experiences are universal and that other human beings have similar experiences, and in the face of the individual, he finds himself in the experience of some emotions and problems only separate from other human beings. For people to experience self-compassion completely, it is necessary to have a conscious mind perspective. In other words, they should not avoid experiencing painful feelings because it is necessary to understand their feelings to feel self-compassion (28). In cognitive-behavioral therapy, it is emphasized on identifying incorrect, negative, and non-negative beliefs affecting patients' emotions and behaviors and modify these underlying beliefs using cognitive and behavioral techniques. Therefore, it can be concluded that both compassion focused therapy and cognitive behavioral therapy have a positive effect on emotional schemas, but according to the results of this study, compassion focused therapy has a greater effect, probably because, in compassion-focused therapy, a person finds a conscious mind view and can better manage his negative emotions (29).

Eta coefficient shows that 42% of the differences in resilience scores are related to the effect of treatment methods. Based on the results, compassion-focused therapy, cognitive-behavioral groups, and the control group showed the highest difference in resilience scores, respectively. A study conducted by Charmchi et al (30) also showed the effect of “cognitive behavior therapy” on anxiety and psychological resilience of menopausal women. Resilience is not only an increase in the strength of one's tolerance and adaptability in dealing with the problem but also, more importantly, maintaining mental health and even promoting it. Resilience empowers individuals to face the difficulties and difficulties of social and business life without being harmed and even using these situations to flourish and grow their personality.

Self-compassion increases the clarity and accuracy of self-assessment because the person does not need to hide his or her mistakes to avoid his or her cruel judgments, and also the person does not need to be self-critical to achieve his ideal goals and standards, but does not mean that he passes them without paying attention and corrective action, but rather self-compassion by accepting responsibility for past mistakes and encouraging and patient behaviors needed for the purposes. It is desired, so it can increase people's resilience. In cognitive therapy, the relationship between thinking, situational launch factors, and the formation of emotions such as depression and anxiety, the use of evidence collection method and cognitive distortions to make one's thinking more objective, using behavioral tests and discovery, and identifying effective and underlying assumptions and beliefs are emphasized. Therefore, it can be concluded that both compassion focused therapy and cognitive behavioral therapy have a positive effect on resilience, but according to the results of this study, compassion focused therapy has a greater effect, probably because it encounters better problems and mistakes in compassion focused therapy and can increase its ability by controlling and managing them and accepting responsibility and thus increasing its resilience (31).

Therefore, this study showed that compassion-focused therapy and cognitive behavioral therapy are effective in improving emotional schemas and resilience, although compassion-focused therapy has more effect. Therefore, it is recommended to improve the mental health of people who have anxiety and emotional problems.

Conclusion

The results showed that compassion-focused therapy had a greater effect on improving emotional schemas and increasing resilience in patients with type 2 diabetes.

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