Original Article

Comparison of compassion-focused therapy and dialectical behavior therapy on state-trait anxiety and impulsivity of patients with coronary heart disease

Solmaz Rafieian[1], *Hassan Ashayeri[2], Jalil Babapour[3]

[1] Department of Health Psychology, Kish International Branch, Islamic Azad University, Kish Island, Iran.
[2] Department of Neurology and Neuropsychology, Iran University of Medical Sciences, Tehran, Iran.
[3] Department of Psychology, University of Tabriz, Tabriz, Iran.

Corresponding author and reprints: Hassan Ashayeri, Professor, Department of Neurology and Neuropsychology, Iran University of Medical Sciences, Tehran, Iran.
Email ashayerih.neuroscientist@iums.ac.ir
Received: 06 Dec 2021 **Accepted:** 26 Feb 2022 **Published:** 17 Apr 2022

Abstract

Background: This study aimed to compare the effectiveness of compassion-focused therapy (CFT) and dialectical behavior therapy (DBT) on state-trait anxiety symptoms and impulsiveness in patients with coronary artery disease.

Methods: This research was a quasi-experimental research method, with pre-test, post-test, and follow-up with a control group. The study population in this study is cardiac patients of Tabriz Madani Hospital. The sample consisted of 60 patients with cardiovascular disease who were selected by voluntary and purposive sampling method and were randomly divided into three groups self-compassion (20 patients), DBT (20), and control group (20). Data were collected using the Bart impulsivity scale (Bart, 1994) and state-trait anxiety log (Spielberger et al., 1970) and analyzed by repeated measure analysis of variance using SPSS software (version 22).

Results: The results showed that the mean of state-trait anxiety symptoms group ($p<0.01$, F (df=2) =10.17, Eta= 0.26) and impulsivity ($p<0.01$, F (df=2) =11.81, Eta= 0.28) in the DBT group at the end of post-test was lower than CFT and the control group. In other words, DBT had the highest effect on state-trait anxiety symptoms and impulsivity ($p<0.01$).

Conclusion: It can be concluded that DBT has a greater effect on state anxiety and impulsivity than CFT and both treatments can be used to improve psychological problems in patients with coronary heart disease.

Keywords: Anxiety; Coronary Artery Disease; Dialectical Behavior Therapy; Mental Health.

Cite this article as: Rafieian S, Ashayeri H, Babapour J. Comparison of compassion-focused therapy and dialectical behavior therapy on state-trait anxiety and impulsivity of patients with coronary heart disease. *Soc Determinants Health*. 2022;8(1):1-9. DOI: http://dx.doi.org/10.22037/sdh.v8i1.36983

Introduction

Cardiovascular diseases have been identified as the leading cause of death in the globe, accounting for 17 million fatalities each year. Cardiovascular diseases include vascular system diseases that affect the blood supply of the heart, brain, and peripheral areas of the body. The first cause of death in Iran with 35% of all deaths is due to cardiovascular diseases (1). Nowadays, coronary heart disease is a health problem and one of the leading causes of death in the world (2). Research in recent years has confirmed the effect of psychological factors on the development and course of coronary heart disease, psychological disturbances such as depression, anxiety, and hostility are risk

factors in the growth and incidence of coronary heart disease independent of biological risk factors and have specific physiological effects on coronary heart patients (3). The impulsivity of patients with coronary heart disease is one of the components that may increase under the influence of becoming ill (4). Impulsive individuals take immediate action regardless of the effects of their activities. These people have difficulty in controlling their response and prefer instantaneous reward to the delayed outcome (5). State-trait anxiety is one of the components affected by coronary heart disease. State anxiety is associated with arousal of the autonomic nervous system, also dependent on specific situations, while trait anxiety is a persistent personality trait related to people's readiness and willingness to experience anxiety (6). There are various studies on the relationship between state-trait anxiety and attentional bias. In some of these studies, both types of state-trait anxiety are involved in attentional bias, but in others, state anxiety is particularly involved in attentional bias. In the third category, some researches show that trait anxiety causes attentional bias (7).

There are many strategies for improving state-trait anxiety and impulsivity of coronary heart disease patients, one of these strategies is CFT. Patients may benefit from self-CFT, which is based on a neuroscientific approach to mental health problems (8) and focuses on four areas: previous experiences and history, basic anxieties, coping techniques, and unforeseen and unintentional results (9). In this treatment, by creating or enhancing an inner compassion relationship between clients and themselves, instead of blaming, condemning, or self-criticism, the necessary help is given to clients (10).The effectiveness of this treatment has been studied in various groups for reducing negative emotions, pessimistic thoughts, and self-esteem (11), reducing stress and increasing feelings of relaxation and relief (12); Depression (13), improving self-criticism and self-destructive thoughts, reducing common symptoms of anxiety, stress, and depression (14) in promoting the emotional improvement of patients (15). Elaine and Hollins (16) discovered that students who received compassion-based education reported higher levels of hope, self-esteem, mental health, resilience, and positive emotions than their peers during a two-month follow-up.

Some behavior therapists have conceptualized the development of behavior therapy in three generations or waves (17). While the main goal in 1st and 2nd generation behavioral therapies is to eliminate or reduce patient problems, third-generation therapies aim to help the patient to actively accept different forms of psychological distress of suffering as inescapable components of their lives — not as an obstacle to achieving the goal (18). DBT is a third-generation cognitive-behavioral treatment that has garnered the interest of researchers and psychologists in the previous decade (19). According to the findings of Jamilian et al. (20), DBT was useful for expulsive anger and impulsive behaviors. Dialectical-based skills training lowers symptoms of sadness, anxiety, and interpersonal sensitivity, according to Salehi et al. (21). Although numerous studies have shown that DBT interventions are useful in the treatment of unpleasant emotions, no research has looked into the impact of this method on anxiety and impulsivity in patients with coronary artery disease. Furthermore, Saeidi et al. (22) discovered that CFT lowers impulsivity associated with divorce. The CFT strategy had a considerable effect on teenagers' anxiety and impulsivity tolerance, according to Niasti et al (23) Compassion centered treatment decreased despair, anxiety, and emotional regulation in individuals with coronary heart disease, according to a research (24). As a result, the aim of this study was to assess the effects of CFT and DBT on symptoms of state-trait anxiety and impulsivity in coronary artery disease patients.

Methods

This was a quasi-experimental study with a pre-test, post-test, and follow-up with a control group. This study's population consists of cardiac patients from Tabriz Madani Hospital. The sample consisted of 60 patients with cardiovascular diseases who were chosen at random (through the convenience sampling approach) and randomly assigned to one of three groups: self-compassion, dialectical behavior treatment, or control. The number of samples needed was determined using G*power software and taking into account the effect size of 0.40, type one error of 5 percent, type two error of 20 percent, and loss to follow-up rate of 10% for each group of 20 participants. Inclusion criteria were maximum age of 60 years, having minimum reading and writing literacy, not receiving other psychotherapy at the same time, not receiving psychotropic drugs, normal listening ability, and informed consent to attend treatment sessions. Exclusion criteria were disturbance in the natural process of treatment, considerable physical diseases such as diabetes, taking anti-anxiety and antidepressant drugs (based on the participant's medical records and self-expression), severe physical disability, lack of cooperation, and absence of more than two sessions.

First, during a recall, 60 patients with cardiovascular diseases were voluntarily and purposefully selected and randomly assigned to two experimental groups (compassion focused therapy and DBT) and control group. The sample selection of this study was to provide the eligible patients hospitalized in hospitals and medical centers with brief information about the research plan, its objectives and the method of treatment. Finally, eligible individuals, as the sample group, participated in the study. After 6 months, the follow-up test was performed again.

The following were the current study's ethical considerations: Individuals were informed about the research and were able to participate if they so desired. Individuals were assured that their information would be kept private and only utilized for research purposes. The names and surnames of the participants were not recorded in order to preserve their privacy.

Bart Impulsivity Scale: The Impulsivity Scale was developed by Bart in 1994. This scale has 30 items and measures three subscales of cognitive impulsivity, motor impulsivity, and programmability. The subject responds to each item based on a four-degree Likert scale (never/ almost always) and the final score is calculated based on a score of three subscales and a total score. The reliability of the questionnaire subscales was analyzed by Cronbach's alpha and retest methods, which were reported between 0.77 to 0.87 (25). Mohammadi Nik et.al (26) study, Zuckerman sensation seeking scale scores were used for convergent validity and the results showed a significant relationship between the total score of the Persian version of the impulsivity scale and sensation seeking (r=0.60). In this research, the reliability of this questionnaire subscales was between 0.79 to 0.84 using Cronbach's alpha

STAI-Y State-Trait Anxiety Scale: The first form of state-trait questionnaire (overt and hidden) anxiety was presented by Spielberger et al. STAI-Y in 1970 and revised in 1983. The revised STAI-Y form has 40 questions, ranging from question 1 to 20 of state anxiety (obvious) with four options (no way, sometimes, generally, very much) and from question 21 to 40 adjectives with four options (almost never, sometimes, most of the time, almost always). The scoring of these questions is done in the form of a four-degree Likert scale. This scale has a 0.79 to 0.83 correlation with Tyler TMAS explicit anxiety scale, and a 0.52 to 0.58 association between anxiety trait and AACT affect trait (27). The Cronbach's alpha for internal consistency in the Persian version of STAI-Y was 0.886 for trait anxiety and 0.846 for

Table 1- Description of self-compassion training program sessions

Session	Content
First	Initial communication with people, reviewing the structure of meetings, awareness of automatic guidance using physical checking exercises (awareness except for body parts), awareness of automatic guidance, and homework.
Second	In this session, people were instructed to face them using physical checkouts when faced with uncomfortable feelings or mental wandering.
Third	Reviewing the practice of the previous session; Teaching awareness of the relationship between the creation of thoughts, emotions, and events.
Fourth	Practice and review previous sessions; breathing exercises. Sitting meditation (mindfulness practice).
Fifth and sixth	These sessions teach about present problems and acceptance without judgment, identifying negative self-outcome thoughts.
Seventh	Education about cognitive distortions, outcomes, and methods of coping with them.
Eighth and ninth	The relationship between safety tactics and hegemonic behaviors, as well as self-criticism and homework.
Tenth to twelfth	Attention, compassionate thinking and behavior and practice to build respect, and how to create compassionate images by providing the necessary meditations were taught.

state anxiety. STAI-Y and BAI had a convergent validity of 0.612 for trait anxiety and 0.643 for state anxiety (p0.001) (28). In this research, the reliability of this questionnaire subscales was between 0.71 to 0.76 using Cronbach's alpha.

First, during a recall, 60 patients with cardiovascular diseases were selected by convenience sampling method and randomly assigned to two experimental groups (self-compassion and DBT) and the control group. Eligible individuals with informed consent, as the sample group, participated in the study. The first experimental group received 12 sessions of CFT weekly for three months. The second experimental group underwent DBT weekly for three months in twelve sessions (Table 1 and 2). The control group received only routine medical care during this period. After 6 months, the follow-up test was performed again.

Table 2- Dialectical behavior therapy based on skills training

Session	Content
F	Familiarity and introduction of the members of the group with each other, conceptualizing the problem. Describing the group rules and determine the number of meetings and focus of meetings.
Secc	Teaching self-knowledge skills (emotional self-awareness)
Th	Self-calm training, wise decision-making, fundamental acceptance, and judgment.
Fou	Paying attention to self-experience behaviors, pleasurable activities, and returning attention by focusing attention on work or another subject
Fi	Paying attention to emotional and logical brains when it comes to emotional interpretations and responses, observation, and description (self-observation)
Si	The role of positive self-talk and problem-solving abilities in modulating emotions, as well as the employment of self-exhilaration coping ideas
Seve	Developing harm-reduction abilities (planning for sleep, exercise, proper nutrition, reducing drug use, and filling leisure time)
Eig	Learning the skill of avoiding emotional minds, teaching illustration from a safe place, and discovering values
Ni	Training planning to promote happy experiences, preparation of a list of enjoyable activities
Te	Emotional awareness and proper response to negative emotions (anger, fear, depression, stress, and guilt)
Eleve	Application of problem-solving skills and opposing action for negative emotions
Twel	Reviewing given sessions and exercises

Table 3- Frequency distribution and comparison of demographic characteristics of research variables

Demographic variables		CFT	DBT	Control	P-value
		Frequency (%)	Frequency (%)	Frequency (%)	
Gender	Female	9 (45)	12 (60)	10 (50)	0.29
	Male	11 (55)	8 (40)	10 (50)	
Marriage	Single (divorced or widowed)	3(15)	2 (10)	4 (20)	0.48
	Married	17 (85)	18 (90)	16 (80)	
Age	31 to 40 years	6 (30)	5 (25)	5 (25)	0.56
	41 to 50 years	10 (50)	8 (40)	10 (50)	
	51 to 60 years	4 (20)	7 (35)	5 (25)	
Education	Diploma	11 (55)	12 (60)	9 (45)	0.09
	Associate Degree	4 (20)	2 (10)	3 (15)	
	B.A	3 (15)	5 (25)	6 (30)	
	Master and above	2 (10)	1 (5)	2 (10)	

CFT= Compassion-focused Therapy; DBT= Dialectical behavior therapy

The data was analyzed using descriptive and inferential statistical methods in response to the research questions. Descriptive statistics such as frequency tables and graphs, as well as central indices and dispersion indices such as average and standard deviation, were employed in the descriptive portion. The hypotheses were tested using analysis of variance with repeated measurements in the inferential portion. The preceding analyses were carried out using the SPSS.22 program.

Results

The descriptive findings of this study are presented in Table 3 for all the variables studied in this study. The results of the pretests showed that there were no any statistical differences between impulsivity and state-trait anxiety in three groups. Therefore, it can be concluded that all three groups were in the same conditions in terms of research variables in the pre-test stage. Prior to repeated measure ANOVA, the M box and Levene's tests revealed that the M box (homogeneity condition of the variance-covariance matrix) and Levene's test (equality condition of within-subject variances) were not significant for study variables. Furthermore, since The Greenhouse Geiser test revealed a significant difference with a value of 0.57 ($P<0.001$), showing that there was a significant difference between the mean of variables in terms of the effectiveness of CFT and DBT. Table 5 shows that analysis of variance is significant for both the within-subject and between-subject factors (time). These findings revealed that, when the effect of the group is taken into account, the effect of time alone is similarly significant. In addition, there is a considerable relationship between group and time. To compare the two groups, the Bonferroni posthoc test was utilized (Table 6).

Table 4- Mean (SD of research variables in three groups of compassion-focused therapy, dialectical behavior therapy, and control

Variables	Group	Pre-test		Post-test		Follow-up		P
		M	SD	M	SD	M	SD	
Impulsivity	CFT	58.35	5.76	54.50	6.08	54.10	5.94	
	DBT	58.22	5.44	52.35	5.59	51.90	5.72	0.001
	Control	58.15	6.68	57.75	7.18	57.65	7.27	
State-trait anxiety	CFT	63.65	2.68	59.90	3.00	59.50	2.62	
	DBT	64.00	2.55	58.70	3.07	58.30	2.93	0.001
	Control	63.90	2.12	63.70	2.34	63.90	2.12	

* CFT= Compassion-focused Therapy; DBT= Dialectical behavior therapy

Table 5- Analysis of variance with repeated measurements for comparison of pre-test, post-test, and follow-up of state-trait anxiety and impulsivity in experimental and control groups

Variable	Source	SS	Df	MS	F	P	Eta
State-trait anxiety	Time	406.54	1.57	258.48	883.34	0.001	0.93
	Time*Group	208.55	3.14	66.30	226.57	0.001	0.88
	Group	413.01	2	206.50	10.17	0.001	0.26
Impulsivity	Time	495.34	1.38	358.16	726.44	0.001	0.92
	Time*Group	213.78	2.76	77.29	156.76	0.001	0.84
	Group	419.07	2	209.53	11.81	0.001	0.28

The results of Table 6 show that the mean of state-trait anxiety and impulsivity in the DBT group at the end of the post-test was lower than CFT and control group ($p<0.01$). In other words, in terms of effectiveness, DBT had the greatest effect, then CFT affected state-trait anxiety and impulsivity ($p<0.01$).

Discussion

The results showed that the mean of state-trait anxiety and impulsivity in the DBT group at the end of the post-test was lower than CFT and control groups. In other words, in terms of effectiveness, DBT had the greatest effect, then CFT affected state-trait anxiety and impulsivity. This study's results were consistent with findings of Jamilian et al. (20) and Salehi et al. (21) who found that this therapy was effective for expulsive anger, impulsive behaviors, and depression, anxiety, and interpersonal sensitivity symptoms.

In order to explain this finding, clinical physicians were asked to help the therapist in understanding disruptive behaviors as acquired behaviors for solving. DBT is changing and modifying cognitive behavioral therapy and is used in people who are dealing with emotions beyond control as well as mood and emotional issues such as depression, anxiety, anger, emotional instability, and irritation. The problem is taking too long to solve, and the therapist lacks the essential skills to respond more creatively (28). This is one of the reasons that DBT has been successful in lowering negative emotions, aggression, and impulsive actions (29). As a result, it can be stated that one of the reasons for DBT's success in the research is that it reduces the suffering of persons with emotional disorders, and that DBT skills diminish inappropriate emotions like impulsivity (29).

In explaining this finding, it can be said that in DBT, a person learns to be conscious of emotional state at any moment and focuses his attention on different ways of emotional occurrence and behavior based on them. Consequently, DBT enables a person to reduce this anxiety by accepting the state of self-judgment and changing the factors that need to be changed (problem-solving).

Table 6- Results of Bonferroni's follow-up test for comparing research variables

Variable	Group	Group	Mean difference	P
State-trait anxiety	Compassion-focused Therapy	Dialectical behavior therapy	2.58	0.001
		Control	-3.52	0.001
	Dialectical behavior therapy	Control	-5.11	0.001
Impulsivity	Compassion-focused Therapy	Dialectical behavior therapy	1.94	0.001
		Control	-3.45	0.001
	Dialectical behavior therapy	Control	-5.40	0.001

Treatment also includes dialectical ideas and practices (such as self-observation), which lead to results that are stable. In addition, DBT by combining mindfulness exercises with behavioral exercises causes patients to observe their illness and emotional states in a state without judgment and in addition to trying to accept the existence of this state and its tolerance, learn the mechanism of passing through this situation. The use of these exercises ultimately leads to distance from emotions, reducing rumination and creating positive emotions (30)

Compassion-focused treatment was found to be useful in treating state-trait anxiety and impulsivity in this study. The findings of this study agreed with those of Saeidi et al. (22) and Niasti et al (23) which showed that CFT reduces impulsivity caused by divorce and had a significant effect on adolescents' tolerance of anxiety and impulsivity.

In order to explain this finding, it can be said that the basic principles of CFT point to the fact that thoughts, factors, and images of external soothing behaviors should be internalized, and that, in this case, the human mind relaxes in the face of these internalities by training self-compassion systems that increase emotional flexibility, just as it relaxes in the face of external factors. The system neutralized the threat and activated the care system in controlling and reducing the anger and impulsivity of treatment participants attempted to significantly reduce their impulsivity by notifying people of the system (22). Also, by doing exercises, the strength of controlling participants' anger was greatly enhanced. Since self-compassion requires a conscious awareness of their emotions, painful and uncomfortable feelings are no longer avoided, but the person approaches them with kindness, understanding, and feeling of human commonalities, so negative emotions become a more positive emotional state. In this treatment, it was tried to reduce their hypersensitivity, especially in their interpersonal relationships, by teaching them self-compassion and abilities such as accepting negative emotions and not replacing positive emotions in people, nasal scratches, individual initiatives (23).

In order to explain this fact, it may be considered that the presence of compassionate attitudes in people allows them to sense a link with others and, as a result, overcome their fear of rejection. Therefore, people who have higher self-compassion experience fewer negative emotions in experiencing unpleasant events, especially experiences that require social evaluation and comparison, considering that humans may make mistakes and all human beings make mistakes (human commonalities component). The component also contributes to self-awareness of self-compassion to prevent the formation of pessimistic thoughts and ruminations as the central characteristic of state-trait anxiety (23) and since much of the state-trait anxiety that people experience is caused by ruminations that are caused by negative experiences in their minds, it can be said that the component is consciousness and mind. Awareness reduces state-trait anxiety by reducing rumination (24).

One of the study's major drawbacks was the lack of cardiological and specialized alterations after the psychological intervention. In addition, there was no group psychological treatment for the control group. The subjects may have been affected by the test conditions due to multiple responses to a questionnaire (pre-test and post-test) and consequently, their accuracy in accountability has been reduced. Finally, given the effects of compassion-focused treatment and DBT on state-trait anxiety and impulsivity in patients with coronary artery disease, psychologists should employ CFT and group DBT frequently. Also, CFT and DBT should be used as complementary to drug treatments in cardiac centers.

References

1. Iranpour A, Khanjani N, Mohseni M, Nazari Robati F. Cardiovascular Diseases Risk Factors and the Relationship between Knowledge Level and Preventive Behaviors for cardiovascular Diseases among Women in Kerman. Journal of Health Based Research. 2016;2(2):119-32. [Persian]
2. Anderson L, Thompson DR, Oldridge N, Zwisler AD, Rees K, Martin N, Taylor RS. Exercise-based cardiac rehabilitation for coronary heart disease. Cochrane Database of Systematic Reviews. 2016; 2(1):29-38.
3. Martin CG, Roos LE, Zalewski M, Cummins N. A dialectical behavior therapy skills group case study on mothers with severe emotion dysregulation. Cognitive and Behavioral Practice. 2017;24(4):405-15.
4. Barake M, Evins AE, Stoeckel L, Pachas GN, Nachtigall LB, Miller KK, Biller BM, Tritos NA, Klibanski A. Investigation of impulsivity in patients on dopamine agonist therapy for hyperprolactinemia: a pilot study. Pituitary. 2014;17(2):150-6.
5. Wang R, Yang Y, Sheng M, Bu D, Huang F, Liu X, Zhou C, Dai C, Sun B, Zhu J, Qiao Y. Phenotype-genotype association analysis of ACTH-secreting pituitary adenoma and its molecular link to patient osteoporosis. International journal of molecular sciences. 2016;17(10):1654.
6. Martinez-Urrutia A, Spielberger CD. The relationship between State-Trait Anxiety and intelligent in Puerto Rican psychiatric patients. Revista Interamericana de Psicología/Interamerican Journal of Psychology. 1973;7 (3-4).
7. Bergen-Cico D, Cheon S. The mediating effects of mindfulness and self-compassion on trait anxiety. Mindfulness. 2014;5(5):505-19.
8. Johnson SB, Goodnight BL, Zhang H, Daboin I, Patterson B, Kaslow NJ. Compassion-based meditation in African Americans: Self-criticism mediates changes in depression. Suicide and Life-Threatening Behavior. 2018;48(2):160-8.
9. Skinta MD, Lezama M, Wells G, Dilley JW. Acceptance and compassion-based group therapy to reduce HIV stigma. Cognitive and Behavioral Practice. 2015;22(4):481-90.
10. Finlay-Jones AL, Rees CS, Kane RT. Self-compassion, emotion regulation and stress among Australian psychologists: Testing an emotion regulation model of self-compassion using structural equation modeling. PloS one. 2015;10(7):e0133481.
11. Boellinghaus I, Jones FW, Hutton J. The role of mindfulness and loving-kindness meditation in cultivating self-compassion and other-focused concern in health care professionals. Mindfulness. 2014;5(2):129-38.
12. Williams MJ, Dalgleish T, Karl A, Kuyken W. Examining the factor structures of the five facet mindfulness questionnaire and the self-compassion scale. Psychological assessment. 2014;26(2):407.
13. Trompetter HR, de Kleine E, Bohlmeijer ET. Why does positive mental health buffer against psychopathology? An exploratory study on self-compassion as a resilience mechanism and adaptive emotion regulation strategy. Cognitive therapy and research. 2017;41(3):459-68.
14. Hoffart A, Øktedalen T, Langkaas TF. Self-compassion influences PTSD symptoms in the process of change in trauma-focused cognitive-behavioral therapies: a study of within-person processes. Frontiers in psychology. 2015;6:1273.
15. Newsome S, Waldo M, Gruszka C. Mindfulness group work: Preventing stress and increasing self-compassion among helping professionals in training. The Journal for Specialists in Group Work. 2012;37(4):297-311.
16. Elaine BC, Hollins M. Exploration of a training programme for student therapists that employs Compassionate Mind Training (CMT) to develop compassion for self and others. The Arts in Psychotherapy. 2016;22:5-13.
17. Nararro-Haro MV, Hoffman HG, Garcia-Palacios A, Sampaio M, Alhalabi W, Hall K, Linehan M. The use of virtual reality to facilitate mindfulness skills training in dialectical behavioral therapy for borderline personality disorder: a case study. Frontiers in psychology. 2016;7:1573.
18. Wilks CR, Korslund KE, Harned MS, Linehan MM. Dialectical behavior therapy and domains of functioning over two years. Behaviour research and therapy. 2016;77:162-9.
19. Linehan MM, Korslund KE, Harned MS, Gallop RJ, Lungu A, Neacsiu AD, McDavid J, Comtois KA, Murray-Gregory AM. Dialectical behavior therapy for high suicide risk in individuals with borderline personality disorder: a randomized clinical trial and component analysis. JAMA psychiatry. 2015;72(5):475-82.
20. Jamilian HR, Malekirad AA, Farhadi M, Habibi M, Zamani N. Effectiveness of group dialectical behavior therapy (based on core distress tolerance and emotion regulation components) on expulsive anger and impulsive behaviors. Global Journal of Health Science. 2014;6(7):116. [Persian]
21. Salehi A, Bahrami F, Ahmadi A. The effect of two methods of emotion regulation training based on Gross process model and dialectical behavior therapy on the symptoms of emotional problems. Zahedan Journal of Medical Research. 2012; 14(2), 55-49. [Persian]
22. Saeidi M, Khalatbari J, Ghorbanshiroudi S, Abolghasemi S. Comparison of the Effect of cognitive-behavioral therapy with Compassion-Focused Therapy on Impulsivity of Women on the Verge of Divorce. Community Health Journal. 2020;14(1):73-83.

23. Niasti N, Shiroudi SG, Khalatbari J, Tizdast T. The Effectiveness of an Education Package based on Compassion-Focused Therapy, Emotion-Focused Therapy, and Acceptance and Commitment-based Therapy on the Tolerance of Anxiety and Impulsivity of Adolescents with Aggressive Behaviors. Journal of Islamic Life Style Centered on Health Volume. 2021;5(4).
24. Adibizadeh N, Sajjadian I. The effectiveness of compassion-focused therapy on depression, anxiety and emotion regulation in patients with coronary heart disease. medical journal of mashhad university of medical sciences. 2019;61(1):103-15.
25. Ghavipanjeh B, Moheb N, Abdi R, Esmaeilpour K. Effectiveness of cognitive therapy based on mindfulness on temptation and impulsivity of opiate addicts. Journal of Modern Psychological Researches. 2020;15(59):198-208.
26. Mohammadi Nik Z, Nasehi M, Tajeri B, Hassani Abharian P, Kraskian A. The Effectiveness of Memory Reconsolidation Interference by Propranolol on Craving and Emotion in Heroin Abusers. Military Caring Sciences Journal. 2021;8(2):156-68.
27. Vagg PR, Spielberger CD, O'Hearn Jr TP. Is the state-trait anxiety inventory multidimensional?. Personality and Individual Differences. 1980;1(3):207-14.
28. Abdoli N, Farnia V, Salemi S, Davarinejad O, Jouybari TA, Khanegi M, Alikhani M, Behrouz B. Reliability and validity of Persian version of state-trait anxiety inventory among high school students. East Asian Archives of Psychiatry. 2020;30(2):44-7.
29. Mehlum L, Ramberg M, Tørmoen AJ, Haga E, Diep LM, Stanley BH, Miller AL, Sund AM, Grøholt B. Dialectical behavior therapy compared with enhanced usual care for adolescents with repeated suicidal and self-harming behavior: outcomes over a one-year follow-up. Journal of the American Academy of Child & Adolescent Psychiatry. 2016;55(4):295-300.
30. McCredie MN, Quinn CA, Covington M. Dialectical behavior therapy in adolescent residential treatment: outcomes and effectiveness. Residential Treatment for Children & Youth. 2017;34(2):84-106.