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Original Article

Comparing the Effectiveness of Dialectical Behavior Therapy and Metacognitive Therapy on Attachment Styles and Dimensions of Identity Transformation in Adolescents

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Abstract

Background and Objective: Adolescence is a critical period of social, psychological, and physical development. Adolescents make important choices about health, growth, attitudes, and health behaviors that will affect their adulthood. Therefore, this research was conducted to compare the effectiveness of dialectical behavior therapy and metacognitive therapy on attachment styles and dimensions of identity transformation in adolescents.

Materials and Methods: This semi-experimental study was performed with a pretest-posttest follow-up design and a control group. The research population included all adolescent girls aged 13 to 16 years in District 1 of Baharestan City who were studying in the seventh to tenth grades in the academic year of 2022-2023 and were referred to the education counseling center in 2022. Out of this population, three groups of 20 people were selected using the availability sampling method and randomly divided into experimental and control groups. The required data were collected through Hazan and Shaver's (1987) Attachment Styles Questionnaire and Berzonsky's Identity Style Inventory (1992) in three pre-test, post-test, and follow-up stages. The subjects in the experimental groups underwent dialectical behavior therapy and metacognitive therapy in one 60-minute session per week; however, the control group received no training. The data were statistically analyzed in SPSS software using the repeated measures ANOVA. The significant level was considered < 0.05.

Results: The results were indicative of the significant effects of dialectical behavior therapy and metacognitive therapy on attachment styles (P=0.017) and the dimensions of identity transformation (P=0.023).

Conclusions: According to the results of this research, the goal of dialectical behavior therapy and metacognition therapy was to increase behaviors that would probably lead to a safe and healthy attachment style and healthy identity transformation in adolescents, and these rewards are internal or external.

Keywords: Adolescent, Attachment styles, Dialectical behavior therapy, Identity transformation, Metacognitive therapy

Background

Adolescence is a transitional stage of physical and mental development in life, which is accompanied by profound changes [1]. Establishing an identity is the primary developmental challenge during adolescence. It is impossible to determine who first introduced the concept of identity [2]. Due to its deep and rooted nature, this concept is something that humans have always dealt with and will continue to; however, the first person who proposed identity in the form of the term "identity" and made it a subject of the scientific issue was Erikson [3]. Erikson established the basis of his psychosocial theory on 8 stages based on the concept of identity and his famous question entitled "Who am I?" [4].

Marcia considers identity a spontaneous and dynamic internal organization that originates from the person's incentives, abilities, beliefs, and experiences and takes advantage of the two elements of commitment and exploration as the criteria for classifying people into four statuses, namely identity diffusion, identity foreclosure, identity moratorium, and identity achievement [5]. The identity styles were introduced by Berzonsky as an attempt to compensate for the defects of the identity status and evaluate people's identity more

accurately. Based on the cognitive-social processing model of identity, identity is a cognitive structure and a self-referential framework that is adopted to interpret experiences and information related to oneself and to answer questions about the meaningful concept and purpose of life. Three cognitive-social identity processing styles are assumed in this model, namely informational, normative, and diffuse-avoidant [6].

People with an informational identity style actively and deliberately search, process, and evaluate information related to themselves before resolving identity conflicts and making obligations and commitments to them. They are hesitant about their views, eager to learn new things about themselves, and willing to assess and modify their identity structure in dissonant feedback [7]. Research shows that informational identity style is related to self-insight, open-mindedness, problem-focused coping strategy, conscious and sensitive decision-making, cognitive complexity, emotional independence, empathy, adaptive self-regulation, high levels of commitment, and acquired identity status [6]. People with a high score in informational identity define themselves as individuals with such attributes as valuable, purposeful, or role models [8].

People with a low normative identity style involuntarily conform to and internalize the goals and criteria of prominent figures and reference groups [9]. Normative style is related to high levels of commitment, self-control, and a sense of purposefulness that requires structure and recognition, power-seeking, and inflexibility. This identity style is associated with low identity status and tolerance as well as intolerance for ambiguity [10]. People with high scores of a normative identity define themselves in relation to collective attributes, such as religion, family, and nationality [11].

The diffuse-avoidant identity style is characterized by delay, procrastination, or defensive avoidance, and people with this type of identity postpone the effort to resolve identity conflicts as much as possible, and when they are forced to take an action or make a decision, their behavior is mainly controlled by external, necessary demands and consequences. According to the Berzonsky model, the diffuse-avoidant identity is more than a fragmented or confused self; it is associated with weak commitments, an external locus of control, impulsiveness, self-handicapping, and a diffusion identity status [12].

One of the factors that can play a crucial role in adolescent decisions is attachment styles [13]. Thoughts, expectations, and feelings that are created as a result of early attachment experiences in the child develop internal active patterns or emotional cognitive attitudes by which in the positive model, the child sees himself as valuable and lovable and considers others trustworthy, while in the self-negative model, he considers others incompetent, sensitive to rejection, unreliable, and worthless. Therefore, attachment style can be a predictor of an adolescent's subsequent decisions [14]. In other words, attachment styles are patterns, expectations, needs, emotions, and social behaviors that originate from a specific history of attachment experiences and usually in relationships with parents [15].

In extensive research, Ainsworth (1978) identified three main attachment styles, namely secure, insecure avoidant, and insecure ambivalent/ resistant. People with a secure attachment style are comfortable in building intimate relationships, tend to depend on others for support, and are confident that others love them. Individuals with an insecure ambivalent/resistant attachment style have a strong desire to establish close relationships; however, at the same time, they are extremely worried about being rejected. These people have a negative self-image but a positive attitude towards others [16]. For people with an insecure avoidant attachment style, self-reliance is a valuable issue. When these people are likely to be rejected by others, they try to maintain a positive self-image by denying the need for attachment. These individuals have negative expectations and attitudes towards others [17]. Based on the results of numerous pieces of research, it has been determined that there is a close relationship between these styles formed from early childhood experiences and high-risk behaviors and adjustment status in adulthood. In addition, it can be acknowledged that there is an emotional element in the structure of attachment, and emotional interactions and emotional regulation play an essential role in the formation of attachment [18-24].

Due to the importance of adolescence and its crucial role in the formation of a healthy personality, as well as considering the nature of attachment styles and dimensions of identity transformation at this age and the resulting costs for the family and society, appropriate treatment should be developed for the formation of healthy identity and appropriate emotions along with healthy attachment in society.

One of the most common therapeutic methods that can be widely used in the field of behavioral disorders and is currently receiving the attention of researchers is metacognitive therapy (MCT). This method emphasizes negative beliefs and thoughts as a result of metacognitive control of cognition and explains how metacognition is effective in the continuity and change of cognition. Metacognitive therapy offers levels of intervention that do not

emphasize the issue of the content of thinking and negative beliefs [25]. The main goal of this therapy is to enable people to communicate with their thoughts in a different way, expand flexible metacognitive control and awareness, and prevent processing in the form of worry, rumination, and threat revision [26].

The metacognitive approach provides patients with strategies to free themselves from the mechanisms that cause them to be locked in processing in the form of worry, threat monitoring, and inconsistent self-control, and by teaching flexible emotional processing, creates a plan in advance for the future to guide thinking and behavior in the face of threats and harm [27]. Metacognitive therapy means not responding to inner thoughts or events, despite being aware of them objectively, without any cognitive effort like analysis, control, or suppression.

Metacognitive therapy is a state in which, despite the objective awareness of inner thoughts and events, no response is made in the form of cognitive efforts, such as confirmatory evaluation, conceptual analysis, or attempts to control or suppress behavior [28]. Owing to the efficiency of techniques in changing cognition, this therapy has a profound impact on controlling and eliminating aggression [29, 30].

Another treatment method to reduce emotional and behavioral problems in children and adolescents is the use of dialectical behavior therapy (DBT) method [31]. Dialectical behavior therapy was first introduced by Linehan in 1993 [32] and follows the principles of cognitive-behavioral approach [33]. It is a promising combination of cognitive-behavioral techniques, psychoanalysis, and mindfulness training of Eastern psychological and spiritual rituals, and mainly aims to help clients to accept their emotions and change their emotional experiences [34]. In general, in DBT, people are taught skills to accept life as it is [35]. The most important of these skills that can be seen in previous research are mental awareness, identifying and describing emotions, accepting all emotions, paying attention to emotions without trying to avoid them if they are painful, and interpersonal relationships [36].

Considering the increasing number of emotional problems in teenagers, it is imperative to identify and implement effective interventions to reduce such damages, especially emotional, attachment, and identity issues. It is necessary to carry out applied research to design effective and therapeutic interventions that aim to reduce the existing damages and help teenagers overcome such problems. The results of this research will be beneficial for all boys and girls with emotional, attachment, and identity problems. Therefore, this research was conducted to compare the effectiveness of DBT and MCT on attachment styles and dimensions of identity transformation in adolescents.

Objectives

This research was conducted to compare the effectiveness of dialectical behavior therapy and metacognitive therapy on attachment styles and dimensions of identity transformation in adolescents.

Materials and Methods

This semi-experimental study was performed with a pretest-posttest control group design and a 1-month follow-up. The statistical population included all teenage girls aged 13 to 16 years in District 1 of Baharestan city who studied in the 7th to 10th grades in the academic year of 2022-2023. The samples were selected using the availability sampling method. The sample size was determined at 20 individuals in each group based on similar studies, such as Linehan and Dimeff [37], and considering the effect size of 0.40, confidence level of 0.95, test power of 0.80, and dropout rate of 10%.

The samples (n=60) were randomly assigned to two intervention groups (DBT and MCT) and a control group (n=20 each), and filled out the questionnaires in 3 stages. Inclusion criteria were being in the age range of 13-16 years old, being a student of District 1 of Baharestan city in the academic year of 2022-2023, and studying in the 7th to 10th grade of high school. On the other hand, the students who were absent for more than two sessions, did not accomplish the specified assignments, and were unwilling to continue participating in the research process were excluded from the study.

Study tools

1. Attachment Style Questionnaire

This 36-item questionnaire, designed by Hazan and Shaver in 1987, measures attachment styles in three subscales, namely secure, avoidant, and anxious/ ambivalent. Cronbach's alpha coefficients have been reported as 0.85, 0.84, and 0.85 for these subscales, respectively. Kendall's W values for the subscales were calculated at 0.57, 0.61, and 0.80, respectively [38]. In Iran, a shortened 15-item questionnaire of Hazan and Shiver Attachment Styles Questionnaire was created, which had 3 subscales as the original one. This instrument was standardized by Afroz in 2008 and its Cronbach's alpha coefficients for secure, avoidant, and anxious/ambivalent subscales were obtained at 0.88, 0.76, and 0.77 respectively. Cronbach's alpha coefficient was 0.873 for the whole questionnaire in the present study [39]. In the current study, Cronbach's alpha coefficient was estimated at 0.77 for avoidant attachment style and 0.70 for anxious/ ambivalent attachment style.

2. Identity Style Inventory

The Identity Style Inventory, developed by Berzonsky (1992), assesses the social-cognitive processes that adolescents undergo in dealing with identity issues [40]. This 40-item questionnaire evaluates three identity styles, namely normative, informational, and diffuse-avoidant. The items are scored on a 5-point Likert scale (1=totally disagree, 2=disagree, 3=somewhat agree, 4=agree, and 5=totally agree). In his latest revised version of the questionnaire on a sample of 618 individuals, Berzonsky obtained Cronbach's alpha coefficients at 0.64, 0.70, 0.71, and 0.76 for the subscales informational, normative, confused/avoidant, and commitment, respectively [41]. To check the features of the revised scale, Tahmasbpour and Zakeri administered it to a sample of 361 students with an average age of 21.5 years, 76% of whom were male. They calculated the internal consistency for informational, normative, and confused/avoidant identity styles and reported Cronbach's alpha coefficients of 0.59, 0.64, and 0.78, respectively [42]. In the present study, Cronbach's alpha reliability was obtained at 0.88 for the whole questionnaire and 0.77, 0.81, and 0.83 for informational, normative, and confused/avoidant identity styles, respectively.

3. Dialectical behavior therapy

This treatment was based on the work of McKay et al. (2007), which was planned according to Linehan's skill training manual [37]. To implement this intervention, 2 group sessions were held for each skill.

4. Metacognitive therapy training

The Metacognitive protocol based on Wells' metacognitive protocol was conducted in eight weekly 90-minute sessions over two months [25]

This research was conducted following ethical considerations. All participants were willing to participate, and they were assured of the confidentiality of their personal information. They were also informed of the possibility of study withdrawal at any research stage.

At the end, the participants of the control group were also invited to receive the treatment. This research had the code of ethics IR.IAU.B.REC.1401.025.

The data were analyzed in SPSS22 software using descriptive statistics (mean and standard deviation) and repeated measures ANOVA.

Results

This research was conducted on 55 participants in three groups of DBT (n=17), MCT (n=17), and control group (n=18). Table 1 gives information about the mean (standard deviation) and the Shapiro-Wilk test (significance level) of the variables of attachment styles and dimensions of identity transformation in the participants in three stages of pre-test, post-test, and follow-up.

Table 1. Treatment protocol based on dialectical behavior therapy

Skill	Content of each session
Sessions 1 and 2 Introduction and comprehensive awareness training	In the first session, after getting familiar with the goals and rules, the group members are involved with three mental states: logical, emotional, and rational, in the comprehensive awareness skills section. It was explained to the group members that mental states in this plan meant three mental states: logical, emotional, and rational. This session, in addition to practicing the mental states of the previous session, was dedicated to training the "what" and "how" skills of comprehensive awareness, including observing, describing, and participating, and "how" skills, including adopting a non-judgmental position, being self-aware, and acting efficiently.
Sessions 3 and 4 Emotional regulation training	In this session, in addition to reviewing the exercises of the previous sessions, part of the emotional regulation skills were taught, including the definition of emotion and its components. In this session, another part of emotional regulation skills was taught, including the pattern of identifying emotions and labeling them, which led to an increase in the ability to control emotions.
Sessions 5 and 6 Distress tolerance training	In this session, part of the distress tolerance component was taught, which was survival strategies in a crisis, including the skills of distraction and self-soothing with the five senses. In this session, while reviewing the previous pieces of training, the group practically practiced the skills of making the most out of the moments and the technique of profit and loss when faced with failure or feeling angry about survival strategies in a crisis. Moreover, training on how to generalize skills outside the treatment session was considered.
Sessions 7 and 8 Interpersonal efficiency training	Interpersonal relationship skills training, key interpersonal skills training, training and practice to identify interpersonal values, identifying obstacles to the use of individual skills, identifying annoying and aggressive strategies and their effectiveness in escalating the problem of interpersonal relationships, practicing registering conflicts and identifying annoying methods, identifying passive relationship strategies (shyness), identifying disturbing emotions, training and practice of warning behaviors and emotions (warning system), training to identify needs and barriers to identifying needs, familiarity with fear and knowing the cause of fear, performing the first exercise of identifying fear (risk assessment), the second exercise of identifying fear (planning for risk-taking), completing the risk-taking form, planning for risk-taking, training courage skills, getting to know the 4 myths that disable relationships. Self-knowledge training, training to identify your emotions, training to identify what you want, training to value yourself and write your rights, learning about the intensity of desires, practicing adjusting the intensity of desires, learning about the skill of making a simple request, practicing making a simple request.

Table 2. Metacognitive therapy protocol

Number of sessions	Content of each session
First session	Introduction of therapist and participant, implementation of pre-tests, preparation and introduction of metacognitive therapy, definition and introduction of attachment style, identity, types of identity and emotion, presentation of metacognitive therapy logic, and presentation of homework.
Second session	Reviewing the assignments of the previous session, getting familiar with the cognitive-attention syndrome and how it affects the persistence of mental disorders, introduction and training of the attention training technique, a selection of the attention training technique summary sheet, and presentation of homework.
Third session	Reviewing the assignments of the previous session, identifying and challenging negative beliefs related to anxiety and uncontrollability and analyzing their advantages and disadvantages, performing the test of losing control in the therapy session, introducing and practicing mindfulness, and providing homework.
Fourth Session	Reviewing the assignments of the previous session, identifying and challenging positive beliefs related to worry and uncontrollability and analyzing their advantages and disadvantages, performing a thought suppression experiment, practicing attention training techniques, increasing the level of difficulty, and providing homework.
Fifth meeting	Reviewing the assignments of the previous session, identifying and challenging positive and negative beliefs related to rumination and analyzing their advantages and disadvantages, identifying the triggers and applying a faulty awareness, and presenting homework.
Sixth session	Reviewing the tasks of the previous session, introducing worry postponement and rumination, coping with worry and active rumination by implementing worry postponement and rumination in the therapy session, practicing attention training techniques, teaching the technique of refocusing attention on the situation, and providing homework.
Seventh session	Reviewing the assignments of the previous session, and presenting a summary of the assignments presented in all therapy sessions.
Eighth session	Answering the questions and problems in using these techniques, giving thanks and getting feedback from the meetings, conducting the post-test.

Table 3. Mean (standard deviation) and Shapiro-Wilk index (significance level) of attachment styles and dimensions of identity transformation in the three stages of pre-test, post-test, and follow-up

Variable		Group	Pretest	Posttest	Follow-up
Mean±SD	Attachment Styles	DBT	42.21±7.20	70.45±9.14	79.36±9.45
		MCT	51.14±8.41	72.57±7.45	79.12±8.01
		Control	50.53±8.07	50.11±8.01	53.14±8.17
	Identity transformation	DBT	15.39±3.16	25.56±4.49	24.83±4.29
		MCT	16.00±3.61	20.47±4.14	22.47±4.35
		Control	15.80±3.32	16.95±3.94	16.75±3.64
Shapiro-Wilk	Attachment Styles	DBT	0.972±0.82	0.960±0.599	0.916±0.109
		MCT	0.968±0.79	0.894±0.054	0.948±0.425
		Control	0.946±0.34	0.932±0.171	0.958±0.498
	Identity transformation	DBT	0.954±0.49	0.933±0.222	0.952±0.455
		MCT	0.956±0.55	0.895±0.55	0.975±0.899
		Control	0.969±0.72	0.945±0.291	0.908±0.058

DBT: Dialectal behavior therapy; MCT: Metacognitive therapy

Table 3 shows that in the two experimental groups, the mean scores of both attachment styles and dimensions of identity transformation increased in the post-test and follow-up stages. However, no similar changes were observed in the mentioned stages in the control group. According to Table 3, to test the assumption of the normality of data distribution, the Shapiro-Wilk values related to the dependent variables were examined for all three groups in the three stages of pre-test, post-test, and follow-up, the results of which demonstrated that the Shapiro-Wilk values were insignificant for both dependent variables in all three groups and stages. This finding was indicative of the normal distribution of dependent variables in the three groups and stages of the research.

Levene's test was used to evaluate the assumption of the homogeneity of error variances of attachment styles and the dimensions of identity transformation among groups. The results demonstrated that there was no significant difference in the error variance of the scores for the two dependent variables across the groups and stages. Therefore, the assumption of the homogeneity of error variances among the data related to the research variables was confirmed. Afterward, the assumptions of the homogeneity of the covariance matrices of the dependent variables were checked using the M-box statistic and Mauchly's test of sphericity, the results of which are presented in Table 4.

Table 4. Results of testing the assumptions of the equality of the variance-covariance matrices and the equality of the error covariance matrix

Variable	Equality of variance matrix of covariances			Equality of the error covariance matrix		
	M.Box	F	P	Mauchly's	$\chi 2$	P
Attachment styles	7.15	0.47	0.867	0.901	1.87	0.47
Identity transformation	19.13	1.21	0.203	0.899	0.40	0.89

According to Table 4, the results of the analysis showed that the Mbox statistic index was not significant for any of the two dependent variables. The assumption that the covariance matrices of the dependent variables (i.e. attachment styles and identity transformation) were homogeneous was confirmed by this finding. Based on the results of Table 4, Mauchly's test showed that the Chi-square score of none of the dependent variables was significant. Therefore, the assumption of sphericity was confirmed for dependent variables. After evaluating the assumptions of the analysis and ensuring that they were confirmed, the data were analyzed using the repeated measures ANOVA.

Table 5 tabulates the results of multivariate analysis in comparing the effects of DBT and MCT on attachment styles and identity transformation.

Table 5 shows that the effect of the implementation of independent variables on attachment styles (Wilks' lambda=0.502, η^2=0.341, F=12.11, P=0.001) and identity transformation (Wilks' lambda=0.589, η^2=0.312, F=7.07, P=0.001) was significant.

Table 6 summarizes the results of repeated measures ANOVA in explaining the effects of DBT and MCT on attachment styles and identity transformation.

Based on Table 6, in addition to the group effect and the time effect, the group × time interaction effect was significant for attachment styles (η^2=0.501, F=18.64, P=0.001) and the dimensions of identity transformation (η^2=0.371, F=9.09, P=0.001). These findings indicated that the implementation of independent variables had a significant effect on attachment styles and dimensions of identity transformation.

Table 7 gives information about the results of the Bonferroni test scores related to attachment styles and the dimensions of identity transformation in all groups and stages of implementation.

The Bonferroni test results presented in Table 7 demonstrate a statistically significant difference in the mean scores of attachment styles and identity transformation dimensions during the pretest-posttest and pretest-follow-up stages; nevertheless, the mean difference of those scores in the posttest-follow-up stages was not significant. Furthermore, based on the Bonferroni test results in Table 7, the mean difference in attachment styles and identity transformation dimensions was statistically significant between the MCT and DBT groups and the control group. Regarding this, the implementation of MCT and DBT led to an increase in the mean scores of attachment styles and the dimensions of identity transformation in the post-test and follow-up stages, compared to the pre-test stage.

Table 5. Results of the multivariate analysis test in evaluating the effect of independent variables on attachment styles and dimensions of identifiability

Variable	Wilks Lambda	F	df	P	η2	Power of a test
Attachment styles	0.502	12.11	4, 100	0.001	0.341	1.00
Identity transformation	0.589	7.07	4, 100	0.001	0.312	0.937

Table 6. Results of repeated measures ANOVA in explaining the effect of independent variables on attachment styles and identity transformation

Variable	Effects	Total roots	Total root error	F	η2	P
Attachment styles	Group effect	9878.28	4497.89	56.38	0.701	0.001
	Time effect	5654.11	4083.91	69.45	0.602	0.001
	Group × time	5562.19	7724.80	18.64	0.501	0.001
Identity transformation	Group effect	914.33	1076.35	24.11	0.499	0.001
	Time effect	817.43	591.82	591.82	0.587	0.001
	Group × time	503.23	1289.24	9.09	0.317	0.001

Table 7. Results of Bonferroni's post hoc test for pairwise comparisons of the effect of groups and times on attachment styles and identity transformation

Variable	Times		Difference in averages	Standard error	Probability value
Attachment styles	Pre-test	Post-test	-13.37	1.75	0.001
	Pre-test	Follow-up	-14.19	1.6.9	0.001
	Post-test	Follow-up	-0.82	1.49	1.00
Identity transformation	Pre-test	Post-test	-4.93	0.69	0.001
	Pre-test	Follow-up	-5.29	0.65	0.001
	Post-test	Follow-up	-0.36	0.68	1.00
Variable	Differences between groups		difference in averages	standard error	probability value
Attachment Styles	MCT	DBT	-5.61	1.82	0.017
	MCT	Control	12.71	1.75	0.001
	DBT	Control	18.33	1.77	0.001
Identity transformation	MCT	DBT	2.61	0.89	0.023
	MCT	Control	5.76	0.85	0.001
	DBT	Control	3.15	0.87	0.002

The Bonferroni test results in Table 7 comparing the effects of the groups indicate significant differences in attachment styles (P=0.010) and identity transformation (P=0.015) between MCT and DBT methods. Accordingly, DBT significantly increased attachment styles compared to MCT. Table 7 shows that MCT led to a significant increase in the dimension of identity transformation compared to DBT. Therefore, the results of the present study revealed that MCT and DBT enhanced attachment styles and identity transformation. In addition, the MCT was found to be a more effective method to boost attachment styles compared to DBT, while DBT was a more effective method to improve identity transformation compared to MCT.

Discussion

The results demonstrated that the effects of DBT and MCT on attachment styles and dimensions of identity transformation were significant. According to the principles of Dialectical behavior therapy, people lack the necessary skills to create a life worth living.

Dialectical behavior therapy is a change and modification of cognitive behavior therapy and is applied to people who struggle with out-of-control emotions as well as mood- and emotional-related issues. In this type of therapy, clinical specialists are asked to help the client solve problems by understanding disruptive behaviors as acquired behavior. This is one of the reasons why DBT has been fruitful in reducing mood- and emotional-related issues. In line with this result were those reported by Katz et al. [43], Koons et al. [44], Miller et al. [45], and McQuillan [46], who investigated the effectiveness of DBT in reducing impulsivity, developing emotion regulation, improving emotional issues, and regulating incompatible emotions that lead to depression, anxiety, and stress.

According to the research conducted, it can be concluded that the reason for the success of DBT in the above studies is the reduction of the suffering of people involved in emotional problems; to elaborate, DBT skills have decreased incompatible emotions. The innovation of this research was examining the effectiveness of DBT in people who had a low level of incompatible emotion regulation compared to patients and also felt powerless from emotional pain more than emotional suffering and the lack of emotional regulation skills caused the increasing trend of insecure attachment and fragmented identity [37].

Metacognitive therapists believe that most people experience emotional states temporarily, and the reason for this is that people have learned ways to avoid and deal with the thoughts that have been created in their minds. In Wills' theory [25], which is the basis of MCT, it is assumed that people suffer from emotional disorders because the metacognitive part of their mind has a pattern of responding to internal experiences that maintains negative emotions and strengthens negative thoughts.

Metacognitive therapists consider metacognition a factor that determines what a person pays attention to. Moreover, according to these therapists, the state of metacognition determines what factors will enter our consciousness system and what strategies we will use to regulate our thoughts and feelings. The important thing that separates MCT from previous treatments is the emphasis of this therapy on the role of thinking styles, and this has improved the attachment style, identity transformation, and cognitive strategies of emotional regulation in the studied group. In addition, the pre-test and post-test scores of the participants clearly showed an improvement in the variables of attachment styles, dimensions of identity transformation, and cognitive strategies of emotional regulation after the implementation of MCT in comparison with the control group, which confirmed the effectiveness of MCT.

Among the limitations of this research, one can mention limited time, short follow-up duration, and long-term transfer of skills on performance improvement. In addition, the findings of the research can be generalized to those teenagers who seek treatment. Finally, the sample group consisted of only teenage girls; therefore, the findings of this research can only be generalized to this specific population. To investigate the effectiveness of this approach more deeply, it is suggested to use randomized and control designs in future studies and subgroups of patients be considered as well. It is recommended that the effectiveness of this approach be compared with other approaches, a longer follow-up period be considered, and the effectiveness of this approach be studied in different diseases.

Conclusions

According to the results of this research, the goal of dialectical behavior therapy and metacognition therapy was to increase behaviors that would probably lead to a safe and healthy attachment style and healthy identity transformation in adolescents, and these rewards are internal or external.

Compliance with ethical guidelines

The current research was extracted from the doctoral thesis of the first author in the field of psychology. This study was approved by the Specialized Center of Research of Islamic Azad University, Borujerd Branch, Borujerd, Iran (IR.IAU.B.REC.1401.025).

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Authors' contributions
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Conflicts of Interest
The authors declare that they have no conflict of interest.

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