

The effectiveness of emotion regulation therapy on self-compassion, emotion control and distress tolerance of female students with self-injurious behaviors

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Abstract

Background: It seems that living in the modern era, the generation gap, low resilience, and difficulty controlling emotions and feelings cause them to have difficulty communicating with others, and this incompatibility may manifest itself in the form of self-injurious behaviors.

Objectives: The purpose of this study was to investigate the effectiveness of emotion regulation therapy on self-compassion, emotion control, and distress tolerance of female students with self-injurious behaviors.

Methods: The method of the current research was a semi-experimental experiment with a pre-test-post-test design with an experimental group and a control group. The statistical population of the research included all second-grade female teenagers with self-harm behaviors in Sari city in the academic year 2023-2024. The sample selection process in the present study included two stages: the first stage was selected using a multi-stage cluster sampling method of self-injurious behaviors questionnaire in order to screen adolescents with self-injurious behaviors. In the next stage, among teenagers with self-harm behaviors, 36 people (including 18 people in the experimental group and 18 people in the control group) were selected by simple random sampling and were specialized in 2 groups. To collect data, Gratez's self-injurious behaviors questionnaire (2001), Neff's Self-compassion Scale (2003), Williams et al.'s Affective Control Scale (1997) and Simmons and Gaher's distress tolerance scale (DTS) (2005) were used. The experimental group received emotion regulation therapy in 8 sessions of 90 minutes in a group manner, and the control group did not receive any therapy. The collected data were analyzed using covariance analysis tests and SPSS-24 software. The significance level for all tests was considered to be 0.05.

Results: The results indicated that emotion regulation treatment has improved self-compassion, emotion regulation and improved distress tolerance in students with self-injurious behaviors ($p < 0.001$).

Conclusion: Based on the findings of this research, it can be concluded that by using emotion regulation training, it is possible to improve self-compassion, regulate emotions, and improve distress tolerance of female students with self-injurious behaviors, and this can reduce their tendency to self-injurious behaviors.

Keywords: Emotion regulation, self-compassion, emotion control, distress tolerance, self-injurious behaviors.

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Background

In recent years, educational specialists and educational psychologists have conducted significant research on the low level of social adaptation and tolerance of distress in female students who face problems in social interactions.

It seems that living in the new era, generation gap and low resilience and difficulty in controlling emotions and emotions cause them to have problems in communicating with others and this incompatibility may show itself in the

form of self-injurious behaviors ¹. Self-injurious behavior is a generic term used to describe intentional self-injurious behavior by people who self-injure. Evidence shows that teenagers directly harm themselves at some point in their lives. As mentioned, self-injury is often defined as intentionally causing damage to body tissue without the intention of killing oneself ². Burning and partial cutting of the body are among the most common methods of self-harm. Self-injury occurs especially during adolescence and it is estimated that 13% to 45% of adolescents experience it ³. Ross and Heath in a research on 440 teenagers aged 14-15 reached the conclusion that 24.4% of them had self-injury behavior ⁴. In Iran, Mozafari & et al. reported in a study that the prevalence rate of self-injurious behaviors was 7.1% in girls and 9.6% in boys ⁵.

One of the variables involved in self-injurious behavior is self-compassion. Self-compassion is a communication mode that is characterized by kindness and empathy and is a complementary framework for understanding the concept of compassion towards oneself and others ⁶. Self-compassion is considered as an effective emotion regulation strategy to deal with negative emotional states and requires that a person has a kind and supportive attitude towards himself in the face of failures and sufferings instead of self-criticism and adversity ^{7,8}. Research shows that self-compassion is associated with eating disorders ⁹, sex offenders ^{10,11}, child abuse ¹², depression ¹³, posttraumatic stress disorder ¹⁴, smoking cessation ¹⁵, chronic pain/ disability ¹⁶, and cluster C personality disorders ¹⁷.

In examining the emotional factors effective in self-injurious behaviors, it is important to examine the emotional dimension of the personality that can be the basis of the behavior. Therefore, one of the variables that have a direct relationship with self-injurious behaviors is the control of emotions ¹⁸. Emotions, as a source of motivation, lead people forward and develop all dimensions of human existence ¹⁹. Feelings and emotions are an inseparable part of human life and they make us grow and develop in life ²⁰. Studying and investigating emotion control is important from two aspects. First, a large number of people suffer from not controlling their emotions because they have not learned the skill of emotion control. Secondly, people's inability to control their emotions affects many aspects of their personal, family, work life and physical-psychological health and quality of life, which ultimately results in the failure to control emotions in the form of risky behaviors or self-injury ²¹.

Another variable that has a direct relationship with self-injury behaviors is distress tolerance. Distress

tolerance refers to the level of tolerance of an inappropriate mental and physical condition. Distress tolerance can be an indicator of mental health or the onset of psychological illnesses ²². In other words; Distress tolerance is a type of perceived ability that a person reports to endure his negative experiences or is a purposeful behavior that he follows during an emotional-emotional experience ²³. Distress tolerance is a type of perceived ability that a person reports to endure his negative experiences or is a purposeful behavior that he follows during an emotional-emotional experience ²⁴. People with distress tolerance try hard to avoid negative emotions, if they cannot avoid them, they turn to unhealthy ways in an effort to resolve the annoying emotional state; These unhealthy solutions are likely to reduce their energy and this will eventually disrupt their physical, psychological and social functions ²⁵. A high ability to tolerate distress and resist uncomfortable emotions makes a person resistant to defeat by negative emotions, and a person can solve his problems rationally. Meanwhile, people who have a lower distress tolerance threshold become more vulnerable to anxiety and depression, and instead of adopting problem-solving approaches, they turn to self-criticism and rumination and turn to experiential avoidance ²⁶. It has been found that distress tolerance is affected by emotion regulation strategies; because the dysfunction of the cognitive regulation of emotion leads to a decrease in distress tolerance ²⁷.

One of the treatments whose effectiveness on self-compassion, emotion control, and distress tolerance of female students with their self-injurious behaviors has not received the attention of researchers is emotion regulation therapy. Emotion regulation means the effort of people to influence the experience and how to express it and the intensity of the behavioral and experimental processes of emotion, which is done through the use of emotion regulation strategies ²⁸. The results of Sheybani & et al.'s research indicated that emotional regulation training can correct depression, anxiety and excitability in adolescents ³⁰. It seems that it is possible to reduce self-harm behaviors in teenagers by teaching emotion regulation and thus emptying negative emotions and using positive emotions ²⁹. In a research, Elhai & et al found that difficulty in regulating emotions and using ineffective emotional regulation strategies are important and influential factors in reducing the mental health of each person ³⁰. Jabari & Aghili found in a study that emotion-focused therapy was more effective than compassion-based therapy in reducing the perception of being burdened, neutral affiliation, and self-injurious behaviors, and compassion-based therapy was more effective in

reducing suicidal thoughts ³¹. Also, Erol & Inozu found that low distress tolerance, low self-compassion, high self-disgust and consequently high emotion regulation difficulty were indirectly related to childhood trauma and non-suicidal self-injurious behaviors. Predict non-suicidal self-harm ³². In another study, Liu et al. found that there is a negative and significant relationship between emotion regulation and self-compassion with non-suicidal self-injurious behaviors ³³.

The generative aspect of this study is important in several ways. First, given that the intervention in question in this study is culturally aligned with the overall structure of society, examining its effectiveness can provide important theoretical information for experts. It is also worth noting that the relevant literature does not have sufficient information on the effectiveness of this treatment on important variables involved in the development of self-injurious behaviors in female students. In addition, examining the effectiveness of emotion regulation training on dependent variables in this study, which will be conducted in a community of girls involved in self-injurious behaviors, does not have an appropriate empirical background. On the other hand, given the emphasis today in scientific circles on planning and implementing psychological interventions that examine the structure and main variables involved in the problem, it is of great importance. Also, from a practical perspective, the results of this study can provide useful information for clinical experts, school counselors, teachers, psychiatrists, and even the students themselves. Therefore, considering the importance of treating self-injurious behaviors and the lack of studies in this field, it seems that treating self-injurious behaviors is very important.

Objectives

According to the mentioned cases, the purpose of this study was to investigate the effectiveness of emotion regulation therapy on self-compassion, emotion control, and distress tolerance of female students with self-injurious behaviors.

Methods

The method of the current research was a semi-experimental experiment in which a pre-test-post-test design was used with an experimental group and a control group. The statistical population of the research included all second-year high school girls with self-harm behaviors in Sari city in the academic year 2023. The sample selection process in the present study included two stages: in the first stage, by using the multi-stage cluster sampling method, 8 schools were randomly selected from among all

girls' first secondary schools, and then 3 classes from each school were randomly selected. They were randomly selected and a self-injurious behavior questionnaire was implemented on them. In the next stage, 36 people were selected among the teenagers who scored high in the self-injurious behaviors questionnaire, and based on the entry and exit criteria as well as the completion and signing of the informed consent form to participate in the research, and were randomly replaced in 2 groups.

Inclusion criteria include: a) having self-injurious behaviors based on the screening questionnaire; b) Willingness to participate in the study and Exclusion criteria include: a) Absence in more than one intervention session; b) simultaneously participating in other intervention programs; and c) suffering from other mental disorders were included.

The following tools were used to collect data:

1. Questionnaire of self-injurious behaviors: Gratz's self-injurious behaviors questionnaire was used to measure deliberate self-injurious behaviors in the studied sample ³⁴. This questionnaire is designed to measure all types of self-injurious behaviors in the non-patient community. The final form of this questionnaire was changed from 17 questions to 16 questions by Lundh, et al. ³⁵. Gratz calculated the Cronbach's alpha coefficient of the questionnaire as 0.82 and its reliability coefficient as 0.68 after two weeks ³⁴. In Iran, Rezaei and Hassanzadeh have reported Cronbach's alpha coefficient and its retest of 0.85 and 0.74, respectively ³⁶. It should be noted that the reliability of this tool in the present study was reported to be 0.75 using Cronbach's alpha.

2. Self-compassion scale: The self-compassion scale of Neff was used to measure the level of self-compassion. The self-compassion scale has 26 questions and is scored on a Likert scale from. The scores are added together and a total self-compassion score is obtained ³⁷. The reliability of this tool was obtained by Neff through Cronbach's alpha method of 0.92 ³⁷. Momeni et al. reported Cronbach's alpha reliability coefficients of 0.71 for human commonality and mindfulness subscales, 0.75 for self-kindness, 0.72 for isolation, and 0.65 for extreme identification ³⁸. In the present study, the reliability of this tool using Cronbach's alpha was reported to be 0.71.

3. Emotional control scale: This scale prepared by Williams et al. is a tool to measure people's control over their emotions ³⁹. The internal validity and retest of the test are 0.94 and 0.78 respectively for the whole scale; 0.72 and 0.73 for anger subscale; Depressed mood subscale 0.91, 0.76; the anxiety subscale was 0.89, 0.77 and for the positive affect subscale 0.84, 0.6 was obtained ³⁹. In the research conducted by Tahmasebian et al. the

reliability of the emotional control scale using Cronbach's alpha coefficient was reported as 0.782 for students, 0.818 for students, 0.889 for teachers, 0.909 for nurses and 0.935 for professors ⁴⁰. The reliability of this tool in the present study was reported to be 0.79 using Cronbach's alpha.

4. Distress Tolerance Questionnaire: Distress Tolerance Questionnaire was designed and constructed by Simmons and Gaher ⁴¹. This tool has been translated and standardized in Iran by Alavi et al. ⁴². The questionnaire has 15 items, which are scored on a five-point Likert scale (completely agree to completely disagree) 1,2,3,4,5

respectively. Cronbach's alpha was reported as 0.82 for the whole scale ⁴¹. The reliability of this tool in the present study was reported to be 0.75.

Treatment protocol: Emotion regulation therapy: Emotion regulation therapy was set based on the concepts and therapeutic plan of Gross ⁴². A brief description of the content of the meetings is presented in Table 1. In order to confirm the validity of the emotional regulation treatment protocol, it can be stated that this protocol has been approved and used in many internal researches ^{43,44}. As can be seen in Table 1, a summary of the content and emotion regulation treatment sessions is presented.

Table 1. Contents of emotion regulation training sessions based on the Gross model (2002)

Sessions	The content of the sessions
Session 1	Conducting the pre-test, communicating and conceptualizing and the need to use emotion regulation training.
Session 2	Recognizing excitement and arousing situations by teaching the difference in the performance of types of excitement and providing information about different dimensions of excitement. Note your emotional states during the next week, considering being in situations where a person may turn to self-injurious behaviors.
Session 3	Evaluation and recognition of emotional experiences and recognition of emotional vulnerability.
Session 4	Preventing seclusion and teaching problem solving strategies in critical situations to prevent turning to self-injurious behaviors
Session 5	Shifting attention, stopping rumination and worrying.
Session 6	Examining negative spontaneous thoughts that lead to negative emotional states and as a result turn to self-injurious behaviors.
Session 7	Learning to express positive emotions and control and reduce negative emotions.
Session 8	Evaluating the degree of achievement of goals for the prevention of self-harm behaviors and the implementation of the post-test.

Results

In the life satisfaction variable based on the self-reported information of the subjects, in the experimental group 27.8% were not satisfied with their life, 50% had low satisfaction and 22.2% were satisfied. Also, in the control group, 16.7% were not satisfied with their lives, 66.7% had low satisfaction, and 16.7% were satisfied. The collected data were analyzed using covariance analysis

tests and SPSS-24 software. The significance level for all tests was considered to be 0.05.

Examining the results from Table 2 shows some changes in the experimental and control groups, which makes it possible to infer the findings of the research. It can be stated that all preconditions such as homogeneity of variances and slope of the regression line have been met.

Table 2. Mean and standard deviation of self-compassion, distress tolerance and emotional control of female students in research groups during the study

Variable	Group	Pre- test		Post-test	
		M	SD	M	SD
Self-Compassion	Experimental	54.33	10.84	70.11	13.56
	Control	54.44	10.60	51.88	11.84
Distress tolerance	Experimental	33.16	7.61	49.33	6.39
	Control	31.83	8.47	32.88	5.00
Emotional control	Experimental	216.88	23.51	143.55	23.57
	Control	208.77	15.82	195.50	19.27

Based on the significance level obtained in this test, it is possible to judge the homogeneity or non-homogeneity of variances. In this way, if the significance level obtained is greater than 0.05, the variances are equal and vice versa. Therefore, according to the above table, the condition of homogeneity of variance is met.

According to the results of Table 4, considering the pre-test scores as variance scores, the difference between

self-compassion, emotion control, and distress tolerance in the experimental and control groups is significant ($P < 0.01$); Therefore, it can be said that according to the eta square in self-compassion (0.38), emotion control (0.62) and distress tolerance (0.57), the percentage is explained with regard to the educational intervention of emotion regulation therapy. Therefore, this hypothesis was confirmed.

Table 3. Levene's Test of Equality of Error Variances

Variable	F	df1	df2	P value
Self-Compassion	0.012	1	34	0.914
Distress tolerance	0.000	1	34	0.989
Emotional control	0.032	1	34	0.859

Table 4. The results of multivariate covariance analysis on self-compassion, emotion control and distress tolerance of female students with self-injurious behaviors in two groups

Dependent variables	Sum of squares	df	Mean square	F	P value	Eta squared
Self-Compassion	3266.47	2	1633.23	10.29	<0.001	0.38
Distress tolerance	25199.87	2	12599.93	28.00	<0.001	0.62
Emotional control	2059.79	2	1029.89	22.72	<0.001	0.57

Discussion

Based on the first finding of this research, it was found that emotion regulation therapy has an effect on the self-compassion of female students with self-injurious behaviors. These findings are with the results of Erol & Inozu ³²; Liu & et al. ³³ is consistent. In explaining the effectiveness of emotion regulation treatment on self-compassion, it can be said that emotion regulation includes monitoring, evaluating and correcting emotional reactions, especially intense and fleeting emotional states in order to achieve goals ⁴⁵. Emotion regulation strategies reflect the reinterpretation of emotion-causing stimuli, which moderate the impact of negative emotions ⁴⁶. Also, emotion regulation is a special form of self-discipline and as external and internal processes involved in reviewing, evaluating and adjusting the emergence, intensity and duration of emotional reactions. In other words, emotion regulation training is a process that can improve self-criticism and increase self-compassion in a person by modulating negative emotions and using positive emotions. It seems that the relationship between emotion regulation and self-compassion is a two-way and reciprocal relationship, which means that self-compassion causes an increase in emotion regulation, and emotion regulation causes emotion management, and of course,

this itself causes an increase in self-compassion ⁴⁷. Therefore, as long as the student was able to regulate or moderate his emotions, it causes an increase in happiness and happiness in the person, and when the person is freed from the shackles of self-criticism, it causes him to love himself more and as long as If a person loves and is kind to himself, he will turn to self-injurious behaviors less.

Based on other research findings, it was found that emotion regulation therapy has an effect on controlling the emotions of female students with self-injurious behaviors. This finding is with the results of Kiadeliri & et al.'s research ⁴⁸ and Alizadeh & et al. ⁴⁹ are aligned. Emotion control means the ability to recognize, express and control negative and positive emotions. The skill of controlling emotions has a positive effect on various aspects of life, interpersonal interactions, mental and physical health. The ability to control emotions is necessary to adapt to stressful life experiences ⁵⁰ and teaches a person how to recognize his emotions in various situations and update or control them. The two important reasons for controlling emotions are that first, a large number of people suffer from the problems of not being able to control their emotions; Because they have not learned the skill of self-control and secondly, the inability to control emotions affects many aspects of life and

physical and mental health, communication and quality of life of people ⁵¹. It can be said that negative emotion regulation strategies are predictive of low positive emotion and strategies of focusing on positive emotion are predictive of low negative emotion. Therefore, positive emotion training can increase the individual's ability to plan, execute and continue tasks, enjoy life and increase awareness of emotional needs. Therefore, training to focus on emotions by improving these strategies in these teenagers who have difficulty in expressing and regulating emotions; it can play an important role in increasing positive emotion and reducing negative emotion.

Based on other findings of this research, it was found that emotion regulation training has an effect on distress tolerance in students with self-injurious behaviors. This finding is in line with the research results of Haroonrashidi ⁵² and Khajezade & et al. ⁵³. In this regard, Havaiy & et al. ⁵⁴ showed in a research that emotion regulation reduces the amount of emotion regulation problems and improves distress tolerance in patients with tension headaches.

In explaining the effectiveness of emotion regulation therapy in improving distress tolerance of students with self-injurious behaviors, it can be stated that people who have the capacity to experience and tolerate low distress in stressful situations are more inclined to self-injury behaviors. It seems that people with a higher level of distress tolerance may be more able to cope with negative emotions and distressing states when they are adaptable ⁵⁵. As a result, distress tolerance or intolerance can affect various other processes in different behavioral aspects and rules, including attention expansion, distress appraisal, and regulation of responses to distress. It should be said that emotion regulation requires an optimal interaction of cognition and emotion to cope with negative situations because humans interpret whatever they encounter cognitively, which determines the reactions of individuals. In other words, in regulating an individual's emotion by encountering emotions, individuals accept their emotions and do not seek immediate relief from negative emotions or avoid them. Therefore, although an individual cannot change their circumstances, they can change the intensity of their emotional reaction to stressful situations and life events. Emotion regulation training means reducing and controlling negative emotions and how to use emotions positively. So, in emotion regulation, the student learns how to control destructive emotions and express positive emotions. Therefore, when faced with emotions, the individual realizes that emotions are tolerable and can cope with their emotions, and when faced with life's adversities and

distresses, instead of resorting to self-destructive behaviors, they use their tolerance and cope with problems more easily.

Limitations

The main limitation of this study is related to external validity because the statistical population of the study is a specific group of society, namely female students with self-harm behaviors in Sari city, so the possibility of generalizing the results to the entire society is limited. Also, the data collection in this study was based on self-report scales. Therefore, another limitation of this study is related to measurement; because these reports are susceptible to distortion due to unconscious defenses, response bias, personal introduction methods, and social desirability in general. Therefore, considering that this study was conducted on female students with self-harm behaviors in Sari city, it is suggested that this study be conducted on a larger sample and in other centers. Considering the limitations of cross-group research methods (experimental research), it is suggested that researchers in the future use single-subject experimental designs to investigate the effectiveness of emotion regulation-based therapy. Another suggestion is that schools should teach skills in emotion regulation, self-compassion, emotional control, distress tolerance, and mutual understanding in order to take an effective step toward preventing these problems in adults.

Conclusion

The results indicated that emotion regulation treatment has improved self-compassion, emotion regulation and improved distress tolerance in students with self-injurious behaviors ($p < 0.001$). Based on the findings of this study, it can be concluded that using emotion regulation training can improve self-compassion, regulate emotions, and improve distress tolerance in female students with self-injurious behaviors, and this can reduce their tendency to engage in self-injurious behaviors.

Highlights

What Is Already Known?

Persistent, recurrent, uncontrolled, and prolonged aggressive behaviors can lead to the development of various disorders and may result in harm to others or self-injury. Self-injurious behavior is a general term used to describe the deliberate act of harming oneself by individuals who engage in self-harm. Burning and cutting parts of the body are among the most common methods of self-injury. Self-injury occurs particularly during adolescence, and it is estimated that approximately 13% to 45% of adolescents experience it. A study conducted on 440 adolescents aged 14 to 15 years showed that 24.4% of them had engaged in self-injurious behavior.

Highlights

What Does This Study Add?

Emotion regulation training is aimed at reducing and modulating negative emotional states while promoting the adaptive and constructive use of emotions. In the context of cognitive emotion regulation, students learn to identify, manage, and modify maladaptive emotional responses, while facilitating the appropriate expression of positive emotions. Through this process, individuals gradually recognize that emotional experiences are tolerable and manageable, and that they possess the capacity to cope effectively with distressing affective states. Consequently, when confronted with adversity and psychological distress, they are less likely to resort to self-injurious behaviors and more likely to demonstrate greater distress tolerance and more adaptive coping in dealing with life difficulties.

Authors' contributions

The authors participated in all stages of the research.

Conflict of interests

Authors confirm that there are no relevant financial or non-financial competing interests to this study.

Ethical Approval

It should be noted that the data of this research has been registered under the ethics code number: IR.IAU.SARI.REC.1402.340 in Sari Azad Medical School.

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Informed Consent

The subjects were assured that participation in the study is completely voluntary and they will be free to refuse to participate in the study and their names will not be recorded in the questionnaire, also their information will remain confidential and only the results will be published.

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Data availability

Not applicable' for that section

Consent For Publication

All authors agree to the publication of the article.

The extent of AI use

The authors did not use artificial intelligence anywhere in the article.

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