

# Research Paper: The Effectiveness of Emotion Regulation Skills Training on Anxiety and Emotional Regulation Strategies in Adolescent Students



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## ABSTRACT

**Objective:** In this study, we aimed to evaluate the effectiveness of training on emotion regulation skills and emotion regulation strategies to overcome anxiety in female students.

**Methods:** We used a quasi-experimental design with pre-test and post-test evaluations to compare the experimental group with a control group. A total of 30 students were selected by multistage cluster sampling and were randomly assigned to either the experimental group (15 students) or the control group (15 students). Data were collected via Beck Anxiety Inventory and Gross and John Emotion Regulation Questionnaire. The experimental group received eight training sessions on emotional regulation, whereas the control group did not receive any training. An analysis of covariance was used for data analysis.

**Results:** According to the results, training on emotion regulation strategies had a significant effect in decreasing anxiety and maladaptive emotional regulation strategies as well as in increasing the adaptive emotional regulation strategies in students ( $P < 0.01$ ).

**Conclusion:** Training on emotion regulation skills can decrease anxiety, and suppression of maladaptive emotional regulation strategy can increase the reappraisal of an adaptive emotional regulation strategy for students.

## Keywords:

Anxiety, Emotion, Regulation, Students, Training

## 1. Introduction

Adolescence is a critical stage in life and the existence of problems such as depression, anxiety, and stress during this phase is a matter of extreme concern for those affected (Bhasin, Sharma, & Saini, 2010).

Anxiety disorder is one of the serious mental health problems in life, especially during childhood and adoles-

cence, and annually puts huge economic and social burden on society (Mash & Woolf, 2012). One of the psychological components in children and adolescents with anxiety disorders is emotion regulation strategies (Rabie, Zerehposh, Palahang, & Zarei, 2013). In an evolutionary perspective, excitement is a heritage that has remained from first humans with us; hence, because of its special functions, it remains in the humankind. Anxiety helps people to show an adaptive response to challenges and

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opportunities they face in their lives, (Khazadeh, Saidiyan, Hosseinchari, & Edrissi, 2012).

Although excitement has a biological basis, individuals can get affected due to the ways they express their emotions. This ability named “emotion regulation” includes a vast range of internal and external processes, which are employed to review, evaluate, and modify emotional reactions. Emotion regulation also includes a wide range of cognitive, emotional, behavioral, and physiological responses. Stress and negative emotional feelings are necessary to understand the correlation between emotion and behavior (Hassani, Azadfalah, Rsoulzadeh Tabatabaei, & Ashayeri, 2008).

Research shows that effective regulation of emotions can predict a positive compatibility (Gross, 2002; quoted by Narimani, Ariapouran, Abolghasemi, & Ahadi, 2011). Reappraisal as a strategy for emotion regulation is related to psychological well-being and high mental health (Yoo, Matsumoto, & LeRoux, 2006; quoted by Narimani et al., 2011). Furthermore, research indicates that negative emotion regulation strategies are associated with psychological problems such as death anxiety (Ghasempour, 2012).

For the treatment of anxiety disorders and the associated symptoms in childhood, adolescence, and adulthood, various methods including medication, psychotherapy, family therapy, group therapy, electric convulsive therapy, and brain surgery have been used (Kaplan & Sadock, 1988). Although a range of interventions can significantly improve these disorders at different periods of life, in the meantime, psychological therapy based on training on emotion regulation skills can be one of the therapeutic methods in overcoming the signs and symptoms of anxiety disorders during childhood and adolescence. Training on emotion regulation skills encompasses decreasing and controlling negative emotions and training to use excitement positively and logically (Narimani et al., 2011).

Emotion regulation strategies are an effective way to change emotions, feelings, desires, beliefs, and practices of the individual and giving order and meaning to daily life so that one can reach higher goals; people’s success in reaching goals is determined based on their skills in emotion regulation, knowledge, and behavior (Jazaieri et al., 2014). Goldin et al. (2014) in a study conducted among people with anxiety disorder found that training on emotion regulation skills could decrease their signs and symptoms of social anxiety. There is no considerable research conducted in the field of evaluating the effectiveness of training on emotion regulation skills and emotion regula-

tion strategies to overcome the symptoms of anxiety in children and adolescents with anxiety disorders.

However, according to Goldin et al. (2014), training on emotion regulation skills might decrease signs and symptoms of anxiety among anxious children and young people. Therefore, in this study, we aimed to answer the question that whether training on emotion regulation skills improves the level of emotional regulation strategies and decrease the signs and symptoms of anxiety in anxious students? It has to be said that if the problem of anxiety is tackled among students and adolescents, then they can be able to overcome educational difficulties and will have a better and more desirable educational performance.

## 2. Methods

In this study, we used a quasi-experimental design with pre-test and post-test data evaluation comparing an experimental group with a control group. The statistical population in this study consisted of all second-grade high school students (grades 10-12), in the academic year of 2015-2016, Nehbandan city, Iran. Study participants included 30 female students who were randomly selected by a multistage cluster sampling method and were assigned to one of the two groups (experimental: 15 participants and control: 15 participants). The mean(SD) age of students in the experimental group was found to be 15.60±0.98 years and that of the control group was found to be 15.46±0.83 years. Participants who did not consume any drugs, showed the absence of comorbid health conditions, and lacked behavioral problems were included in this study. Data were collected on two questionnaires: Beck Anxiety Inventory and Emotion Regulation Questionnaire.

The level of anxiety in adolescents was evaluated by Beck Anxiety Inventory. This scale consists of 21 items, including the common symptoms of anxiety. Participants respond by rating their responses for their condition as follows: 0=Not at all; 1=Mild; 2=Moderate; and 3=Severe. Therefore, the score can range from 0 to 63. In a previous study (Kavyani & Mousavi, 2008), the validity and reliability of this scale were studied. The results of this study showed that the Persian version of Beck Anxiety Inventory has a good reliability ( $r=0.72$ ,  $P<0.001$ ), a very good validity ( $r=0.83$ ,  $P<0.001$ ), and an excellent internal consistency ( $\alpha=0.92$ ). Wetherell and Gatz (2005) explored the psychometric properties of the Beck Anxiety Inventory in a clinical group that included 75 patients with generalized anxiety disorder and a comparison group that included 32 adults without significant psychopathology. They discovered that internal consis-

tency was above 0.80 and the Beck Anxiety Inventory showed evidence of convergent validity in both groups. In this study, we found an internal consistency of 0.83.

The Emotion regulation questionnaire has been prepared by [Gross and John \(2003\)](#). It consists of 10 items under two subscales: reappraisal (6 items) and suppression (4 items). Responses are based on 7-point Likert scale which ranges from strongly disagree (1) to strongly agree (7). The minimum score in the questionnaire will be 10 and the maximum will be 70. Obtaining higher scores in the reappraisal indicates the existence of a high level for reappraisal as a positive emotion regulation strategy in participants and obtaining a lower score in suppression indicates lower levels of suppression as a negative emotion regulation strategy in participants and vice versa.

According to our results, Cronbach's alpha coefficient was 0.79 for the reappraisal and 0.73 for the suppression, and the test-retest reliability after 3 months was reported as 0.69 for the whole scale ([Gross & John, 2003](#) quoted by [Birami, Akbari, Ghasempour, & Azimi, 2012](#)). This scale has been normalized in Iranian culture by [Ghasempour, 2012](#)). They found that the validity of this scale based on the internal consistency (Cronbach's alpha ranging from 0.60 to 0.81) and the validity of this questionnaire through analyzing the principal component, the correlation between two subscales ( $r=0.13$ ), and the criterion validity are reported favorable ([Birami et al., 2012](#)). In this study, internal consistency was found to be 0.72.

After the necessary coordination with authorities of the high school, three schools with grade 10-12 were selected randomly in several stages; we selected three classes from each school and distributed Beck Anxiety Inventory questionnaire among 165 students. After collecting their responses, 45 students who gained above the cutoff point (score 21) were selected. The scores in this questionnaire are interpreted as follows: score of 0-21=low anxiety, 22-35=moderate anxiety, and  $\geq 36$ =potentially concerning levels of anxiety ([Beck, Epstein, Brown, & Steen, 1988](#)). After a review, 30 students who met the inclusion criteria were selected. Then, they were randomly divided into two groups: control and experimental groups and subsequently completed the questionnaire of emotion regulation strategies.

Information about the research project was provided to parents. Parents expressed their satisfaction with the presence of children in this study. Researchers reassured parents that their children's information would remain confidential. After the completion of the research, the control group underwent training on emotion regulation skills.

After this, an educational program was conducted for the experimental group based on interventions related to emotion regulation skills. Emotion regulation training was developed by [Gratz and Gunderson \(2006\)](#). This method was presented in 8 sessions (every session: 90 minutes). These sessions consisted of: 1. Conducting pre-test, communicating, and introducing of emotion regulation training; 2. Awareness of positive emotions; 3. Awareness of negative emotions; 4. Acceptance of positive emotions; 5. Acceptance of negative emotions; 6. Educating reappraisal and expressing positive emotions; 7. Educating reappraisal and expressing negative emotions; and 8. Concluding and conducting post-test ([Narimani et al., 2011](#)).

At the end of these interventions, post-test evaluations were performed for both groups. After the above-mentioned sessions, methods and techniques of emotional regulation strategies were taught to the experimental group for 8 sessions (training sessions of emotion regulation skills were held once a week for 2 months), and during this period, the control group did not receive any psychological training. After 8 sessions of training on emotional regulation strategies, participants attempted to fill out the questionnaires. It should be noted that at all stages of implementation, the researcher was in close cooperation with participants and replied to confusions and their possible problems. Parental consent was obtained for the participation of children in research and emotion regulation training sessions conducted for the control group after the ending of study. Descriptive statistics (mean and SD) and inferential statistics (multivariate analysis of covariance (MANCOVA)) were used to analyze the data. It should be noted that all data analysis was performed using SPSS Version 21 software.

### 3. Results

The mean( $\pm$ SD) for age in experimental group and control groups were found to be  $15.60\pm 0.98$  and  $15.46\pm 0.83$  years, respectively. [Table 1](#) shows the descriptive statistics, including mean and SD of scores of anxiety and emotion regulation strategies in experimental and control groups at pre-test and post-test. First, to check the assumption of normality of anxiety and emotion regulation strategies, we used the Kolmogorov Smirnov test. According to this test, the normality of scores was confirmed in experimental and control groups ( $P>0.05$ ). It is necessary that the assumption of homogeneity of variances in variables be examined. According to the results, there was no significant difference in variance of variables between experimental and control groups ( $P>0.05$ ).

**Table 1.** Mean differences of anxiety and emotion regulation strategies in pre-test and post-test

Groups	Stages	Post-Test		Pre-Test	
	Variables	Mean	Standard Deviation	Mean	Standard Deviation
Experimental	Anxiety	28.80	4.074	16.466	2.231
	Suppression	20.533	3.248	15.266	2.939
	Reappraisal	22.533	2.416	34.600	3.290
Control	Anxiety	29.400	4.672	28.133	5.262
	Suppression	20.666	3.829	19.466	3.181
	Reappraisal	22.666	2.820	22.733	2.120

PRACTICE in  
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Source of Changes	SS	df	MS	F	P
Pre-test	945.43	1	945.43	109.38	0.001
Group intervention	1361.03	1	1361.03	131.52	0.001
Error	328.99	27	328.99	-	-

PRACTICE in  
CLINICAL PSYCHOLOGY**Table 3.** Summary of the covariance analysis results for reappraisal variable

Source of Changes	SS	df	MS	F	P
Pre-test	1019.20	1	1019.20	147.38	0.001
Group intervention	1544.38	1	1544.38	164.18	0.001
Error	492.01	27	492.01	-	-

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As seen in [Table 2](#), comparison of the results between the two groups by controlling the effect of pre-test and post-test showed that anxiety scores of students in the experimental group had a significant increase compared to the control group. According to [Table 3](#), comparison of the results between the two groups by controlling the effect of pre-test and post-test showed that reappraisal

scores of students in the experimental group had a significant increase compared to the control group. As presented in [Table 4](#), comparison of the results between the two groups by controlling the effect of pre-test and post-test showed that suppression scores of students in the experimental group had a significant increase compared to the control group.

**Table 4.** Summary of the covariance analysis results for suppressor variable

Source of Changes	SS	df	MS	F	P
Pre-test	126.30	1	126.30	24.41	0.001
Group intervention	433.87	1	433.87	51.24	0.001
Error	98.73	27	98.73	-	-

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#### 4. Discussion

The aim of this study was to assess the effectiveness of training on emotion regulation skills and emotional regulation strategies to overcome anxiety in adolescent students. According to our results, it is clear that there is a significant difference between experimental and control groups in the post-test evaluations in terms of signs and symptoms of anxiety. Thus, we can say that female students in the experimental group were in a better condition in the post-test evaluation in terms of anxiety and its symptoms than that of students the control group. The level of anxiety among female students in the experimental group was significantly lower than that of students in the control group.

This shows that the training on emotion regulation skills was efficient to help them overcome their signs and symptoms of anxiety. Our results are consistent with the results of previous studies such as [Aldao, Sheppes, and Gross \(2015\)](#) and [Ghasempour and Fallah \(2014\)](#). [Aldao et al. \(2015\)](#) in a study showed that the efficacy of thrill-based treatments such as psychological treatments based on emotion regulation strategies and emotional processing can decrease the signs and symptoms of emotional disorders. [Ghasempour and Fallah \(2014\)](#) conducted research among students suffering from social anxiety and concluded that training strategies based on emotion regulation will reduce the signs and symptoms related to fear of positive assessment of students suffering from social anxiety.

According to our results, it is clear that there is a significant difference between the experimental and control group in the post-test evaluation in terms of reappraisal as a positive and adaptive emotion regulation strategy. Thus, we can say that the female students in the experimental group were in a better condition in the post-test evaluation in terms of anxiety and its symptoms than that of students in the control group. The level of reappraisal as a positive and adaptive emotion regulation strategy was significantly higher in students of the experimental group than that of students in the control group. This shows that training emotion regulation strategies are effective on reappraisal as a positive and adaptive emotion regulation strategy. The findings and conclusions of this research were in line with the results of previous studies ([Ghaednia, 2013](#); [Goldin et al., 2014](#)).

[Goldin et al. \(2014\)](#) conducted a study among people suffering from social anxiety disorder. They found that training emotion regulation skills helped to decrease the signs and symptoms of social anxiety and shyness

in people with anxiety disorder. According to the results, it is clear that there is a significant difference between experimental and control groups of students in the post-test evaluations in terms of suppression as a negative and inconsistent emotion regulation strategy. Thus, we can say that students in the experimental group were in a better condition in the post-test evaluations in terms of suppression as a negative and inconsistent emotion regulation strategy than that of students in the control group. The level of suppression in students of the experimental group was significantly lower than that of students in the control group.

In other words, training emotion regulation strategies had a positive impact on suppression, had a negative and inconsistent emotion regulation strategy, among female students with anxiety. These results are in line with the results of previous research ([Ehret, Kowalsky, Rief, Hiller, & Berking, 2014](#)). [Ehret et al. \(2014\)](#) performed a research on people suffering from mood disorders and major depression and concluded that training on emotion regulation skills can reduce the inconsistent signs and symptoms of emotion regulation associated with depression.

Thus, the results of this study show that based on emotion regulation strategies it is possible to decrease the beliefs of inefficiency and thoughts about signs and symptoms of anxiety disorders and inconsistent strategies of emotion regulation in students suffering from anxiety in inter-personal and inner-personal situations. [Goldin et al. \(2014\)](#) believe that training on emotion regulation skills by increasing the person's ability and diverting his or her attention from ineffective matters (such as concentrating on negative and inefficient thoughts in an anxious person who suffers from people's judgments), and focusing on what is more important and efficient can help to moderate the emotional experiences or in other words, notice flexibility and reappraisal.

Furthermore, by getting far away from negative and inefficient thoughts, anxious people will learn to see all those fears caused by anxiety in different situations as thoughts and emotions that are not necessarily real, and this way they can reduce these kinds of fears and anxieties. By training on emotion regulation strategies and teaching the correct manners of expressing emotions and excitements in the experimental group, people suffering from anxiety disorder learned the correct ways and methods of dealing with problems and accidents; they learned how to communicate with others, and this can lead to building a better relationship with other people and decreasing their illogical fears and anxieties and also

increase of reappraisal as a positive and adaptive strategy in emotion regulation.

In addition, because of the training and changes in their interpretation to be more logical, a person with anxiety finds more accurate interpretations on events and on his and others' evaluations, and this positive attitude will lead to less trouble in their relationships with others and helps them to decrease the use of suppression in these situations. However, during training, people with anxiety are given insight that they have false and disastrous ideas about themselves and regarding their relationships with people, friends, peers, and others; this helps them to create a negative and selective orientation toward themselves and toward communicating with others and their positive and negative assessments. Thus, after training sessions, when they experience some negative emotions by their self-evaluations, such as fear, they will be in a better position to overcome their negative thoughts by replacing incorrect thoughts with more rational ones. Therefore, training sessions can decrease suppression and suppressed excitement and increase the reappraisal in patients with anxiety.

In total, training on emotion regulation strategies can be invoked in explaining the results of this study (Narimani et al., 2011), where the reduction of negative emotions and controlling them and functionality and positive usage of emotions have been taken into consideration. In this way, people with cognitive disorders will be familiar with their negative and positive emotions and increase their emotional awareness (Ehret et al., 2014). In addition, according to Goldin et al. (2014), positive emotions and thinking about them and reviewing and controlling the positive mood and reappraisal of positive and negative emotions can help individuals to decrease their negative moods and signs and symptoms of anxiety.

This study has some limitations. First, it does not consider variables such as socioeconomic status and other intermediate variables. Second, this study does not have a follow-up period. Third, the results of this study cannot be generalized to other communities. Therefore, we suggest that future studies should focus on male participants and assess the effectiveness of emotion regulation strategies on other disabilities. We also suggest that follow-up period should be included in future studies.

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### Conflict of Interest

All authors certify that this manuscript has neither been published in whole nor in part nor being considered for publication elsewhere. The authors have no conflicts of interest to declare.

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