

## THE EFFECTIVENESS OF EMOTIONAL REGULATION STRATEGIES ON EMOTIONAL SCHEMAS OF ADOLESCENTS WITH OPPOSITIONAL DEFIANT DISORDER: A SINGLE CASE STUDY

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### ABSTRACT

Emotion Regulation is an important factor in determining health and having a successful performance in social interactions and its impact on exocrine dysfunction is of great importance. Thus, this study is conducted with the aim of emotional processing management strategies in female adolescents' schemas with oppositional defiant disorder. The present study is implemented within the framework of a single subject experimental designs using multi-tiered base line plan. In this way, after the baseline condition, the intervention started and during eight individual interventional sessions, learning emotional processing management strategies is presented based on Gross model to the participants and three students were followed a month later three months in row. The tool used in the research included Leahy Emotional Schema Scale (ESS-P) that all individuals were evaluated 11 times (4 times baseline, 4 times intervention, and 3 times follow-up). To analyze the findings the (SPSS21) software and the indicators of the process changes, gradient, Cohen's effect size indicators, and the interpretation of ebb and flow were used. The findings showed that the intervention to the subjects significantly reduced the scores of Emotional Schemas in a way that the scores in eight training sessions had significant changes compared with the baseline scores. The results showed that emotional processing management strategies are impressive in female adolescents' schemas with oppositional defiant disorder.

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### Introduction

Adolescence is the most important life stages where personality establishes and takes shape. Most incompatibilities and behavioral disorders in adulthood are caused by lack of attention toward behavioral and emotional problems in adolescence and lack of integrity in the process of development [1]. Recently, based on the acceptance of this fact, an increasing attention has been focused on the prevention and treatment of childhood disorders[2]. One of the most common behavioral problems in adolescents is oppositional defiant disorder [3]. Commonly, oppositional defiant disorder is referred as a subset and an initiator of other new and severe behavioral disorders. Approximately, behavioral abnormalities have been observed in a

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third of children and adolescents suffering from oppositional defiant disorder [4]. According to the fifth edition of the diagnostic and statistical manual of mental disorders, children and adolescents suffering from oppositional defiant disorder show sustainable pattern of repetitive behavior, negativity, defiance, disobedience, and hostility to the trappings of power. If these symptoms persist for at least 6 months and do not be age-appropriate for child and adolescent's developmental age, they cause clinically significant abnormalities in his educational, social, and vocational functioning [5]. Aside from the impact of this disorder have on social, education issues, and communication with family members; if it be left untreated in more than 75% of cases, it will convert to conduct disorder, antisocial disorder and other psychological injuries adults that are associated with aggression and violence [6]. Most experts agree that instead of a single cause, a variety of factors are contributing to the risk of disruptive disorders. The Etiology Researches have introduced the cause of the disorder as a genetic or biological combination of features and trends of teenagers, ineffective parenting styles, and environmental conditions [3]. Another reason for creating and maintaining emotional schemas is oppositional defiant disorder. Emotional Schemas contain beliefs about the origin of emotions, differences, period, universality, guilt, the loss of control, danger, understanding, the need to be rational, and emotional legality. These schemes reflect the ways in which people experience their emotions and the belief that they have upon the arousal of the unpleasant emotions about the appropriate plans for action and how to act when unpleasant emotions are aroused in the mind [7]. Emotions are specified with automatic negative thoughts and distorted interpretation of stimulants and events. It is believed that negative thoughts or distorted interpretations originate the activation of negative beliefs accumulated in long-term memory. In this regard, schemas may be considered as structures for concepts recovery sorted in memory or an organized system of information, beliefs, and assumptions[8] . Oppositional defiant disorder are exactly described with persistent and severe negative emotions and in fact, the negative emotional schemas and maladaptive emotion regulation practices are a risk factor for trauma and the underlying communication problems in people. Through this theoretical basis, it seems oppositional defiant can be the result of emotional schemas. In this regard, emotion regulation strategy includes psychological components that underlie extensive research consisting disorders in childhood and adolescence[9] . [10] in a case study began to examine the effects of the use of self-control skills on aggression; the results showed that self-control skills reduces disruptive behavior and increased self-control and social interaction of the students with Oppositional Defiant Disorder. Barlow, Allen, and Choate [11] in another study examined the effectiveness of emotional regulation on mood and anxiety disorders; the results show the effectiveness of this treatment. Gupta, Zachary Rosenthal, Mancini, Cheavens, and Lynch [12] showed that emotion regulation may modify shame. In another study [13] have reported that people with borderline personality disorder features are located in a high rank, the suppression of emotions causes the regulation of their emotions. Fairburn et al. [14] have conducted a research on the impact of emotional regulation on eating disorders; the results showed emotion regulation plays a significant role in this regard. In a study by Axelrod, Perepletchikova, Holtzman, and Sinha [15] examine emotion regulation and prevalence of drug abuse among women with drug abuse and borderline personality disorder receiving dialectical behavior therapy, have concluded that improving emotion regulation reduces the prevalence of drug use and improve the temper .Szasz, Szentagotai, and Hofmann [16] in numerous studies have cited the role of emotion regulation on anger management; the results indicated that the reassessment or re-estimation techniques (Creating a positive or neutral interpretation to reduce negative stress) are more effective than reception and suppression techniques (inhibition) to modify the experience and expression of anger. In another study Webb, Miles, and Sheeran [17] have evaluated the effectiveness of emotional regulatory process model strategies on the changes of the emotion regulation on the empirical, behavioral, and physiological indicators; the results have specified differences in effectiveness between the processes of emotion regulation Verzeletti, Zammuner, Galli, and Agnoli [18] have performed a research with the goa of emotional regulation strategies and psychosocial well-being among adolescents; the results indicated that greater use of cognitive reappraisal leads to the improvement of psychological factors. Utomo [19] has conducted a research with the aim of teachers' emotion regulation with cognitive approach in order to deal with anti-social behavior of children; the results indicate that teachers' cognitive emotion regulation in dealing effectively with anti-social behavior of children has a significant impact. E. A. Kaufman et al. [20] have done a study aiming the disorders of emotion regulation in children whose mothers suffer from borderline personality disorder and antisocial personality disorder; The results showed the lack of emotion regulation of mothers was associated with behavioral disorders in children, thus it should be taken into account for the prevention of the mental health problems of children. Schoorl, van Rijn, de Wied, Van Goozen, and Swaab [21] conducted a study with the aim of emotion regulation problems in boys with conduct disorder / oppositional defiant disorder and its relationship with autism and attention deficit. The results highlight the lack of emotion regulation as a significant problem in patients with conduct disorder and oppositional defiant disorder but boys suffering from these disorders are not aware of this problem, so paying attention to this fact is important.

Studies have shown that powerful class of cognitive emotion regulation contains a stimulating emotional intelligence agency [22] . The newest and most comprehensive patterns presented in this field belongs to James J Gross [23] that has been proposed as the processing model of emotion regulation. Emotion regulation represents the range of processes through which people can change the nature, fluctuation, and duration of emotions that is to understand the emotional disorders [24] . According to Gross' processing model, emotion starts with the evaluation of internal and external symptoms of emotion and

this evaluation results in the coordination of a series of behavioral, experimental, physiological, and emotional responses; and subsequently, it intensifies the conditioned response and creates a cycle as follows:

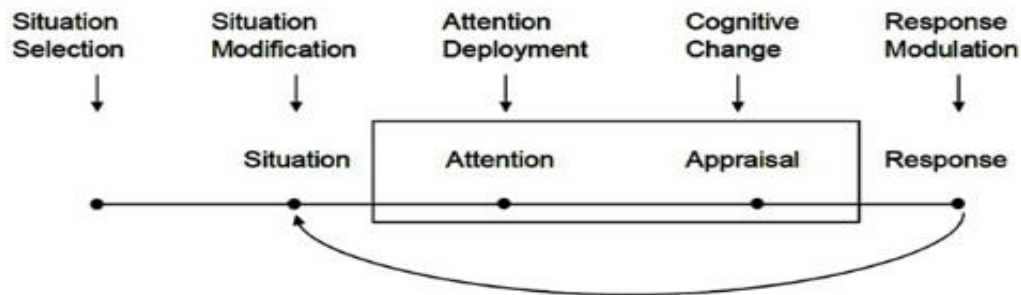


Figure 1. Emotion Justification Cycle

In this model, emotion is set in two major directions which are Antecedent Focused Emotion Regulation (AFER) and Response Focused Emotion Regulation (RFER). Based on Gross' [24] point of view, in the way of the Antecedent Focused Emotion Regulation, emotion regulation implicitly occurs before the general activation of emotional responses. The strategies of Response Focused Emotion Regulation are repression, intensification, reduction, becoming lengthy or interruption of the continuity of emotional experience, and emotional related physiological expression or response [25].

The study of cognitive emotion regulation strategies and its relationship to psychopathology is of great importance because of the flexible nature of adolescence and establishing adults' behavior patterns during this period. Mental health of adolescents result from the transaction between the use of certain types of cognitive emotion regulation strategies and the correct evaluation of stressful situations [26]. Hence, given that inconsistent teens have a normal and even higher IQ, but due to abnormal behavior normally are not able to maintain the relationship with other people and given the fact that cognitive emotion regulation strategies are generally learned in childhood and at the end of adolescence has almost become auto cognitive style and is nearly established, also due to the importance of the relationship between schemas of emotion as factors affecting health outcomes and a strong predictor failure and success is essential in the treatment and in order review, evaluate and modify emotional reactions in adolescents with oppositional defiant, interventions such as procedural emotion regulation strategies should be used as a therapy for inhibiting or controlling these factors.

According to the mentioned points, it can be said that emotion regulation strategies have essential role in disruptive behavior and externalizing disorders in children and adolescents, on one hand, the outcome of this research from the increasing dimension could strengthen the knowledge in the field of psychology, on the other hand, can clear the way for identifying the factors and emotional components involved in the creation and persistence of oppositional defiant disorder in adolescence. The aim of this study is that to study the impact of emotion processing management in the emotional schemas of young people suffering from oppositional defiant disorder. However, due to the fact that girls report more negative emotions in negative situations and since the ability of people to cope with this decreases in the early and middle adolescence, the present study has been done on this group of people; based on this, the research hypothesis was presented as follows:

Emotion regulation strategies affects the emotional schemas of adolescence suffering from oppositional defiant disorder.

## Method

The research method, population, and sample: This research is a single case study; the small number of subjects, the specialty of the subjects' characteristics, and the heterogeneity of the sample are among the reasons for the use of this plan in the present study. The study population includes all 18-14 adolescents suffering from oppositional defiant disorder. The sampling of this research is purposeful. Meaning that participants are selected on the basis of the judgment of the investigator or study purposes. In this sampling, the purpose is selecting individuals that provide a deep understanding of the subject matter for research. These youth have previously received a diagnosis of oppositional defiant disorder from educational advisers. For accurate diagnosis, self-reported scale of the behavioral problems in adolescents were completed by participants and to ensure the final diagnosis, clinical semi-structured interviews were conducted with youth. Among them 3 patients that had the entry criteria were selected. The entry criteria are: female gender, having a diagnosis of oppositional defiant disorder on the basis of DSM- 5, a score above the cut-off in the screening tests, age range between 14-18 years, participants consent to participate in the research and the lack of inclusion and exclusion criteria include the presence of other co-morbid disorders, receiving other psychological interventions, receiving individual training, familiarity with interventions, excessive absenteeism of the students in the training sessions, the infection of the teens to a particular disease. In this study, a questionnaire was used for data collection. In the first stage, the aim of collecting data by questionnaire and the necessity of cooperation of the respondent in supplying the required data are expressed. For this purpose, the emphasis was placed on the value of data obtained from the questionnaires so that the respondent appropriately supply the answers. The second stage includes the questionnaire for subjects' demographic characteristics, this questionnaire

made a tool which contains descriptive information and demographic properties of the subjects as age, education, parental education, socioeconomic status, physical health status.

**Subjects**

Subject No. 1: Zohre Sh -17-year-old-Single -education: Junior student of empirical science-Student

Patient has strong disagreements with his uncle who is his guardians; she frequently has verbal conflicts with his uncle; in addition, she mostly shows stubbornness and defiance toward her older sister and mother's wishes; and often has an impulsive behavior at school and disobeys the class' rules; moreover, her relationship with her classmates is not satisfactory and the financial difficulties of her family and his father's cancer does not matter for her and believes that others are clamorous.

Subject No. 2: Shadi S -17-year-old-Single -education: Junior student of Mathematics-Student

She believes that the grade level and the teachers are of a low level, they are not able to answer her questions, regarding that, she conflicts with her teachers all the time and mostly disobeys the class' rules and she believes that she cannot be successful in this condition. At the same time, she regularly argues with her Mom, so that she was angry with her mother all summer. Additionally, she constantly argues with her brother and believes that her mother differentiates between her brother and she; thus most of the time she is in her room.

Subject No. 3: Nasrin M -16-year-old-Single -education: Second grade of empirical science-Student

The patient is incompatible at home in a way that is mostly hostile toward her mother and father requests and reacts against the smallest request and speech negatively; at school, she frequently argues with school principals because of her appearance; she disobeys school rules; also she does not have a good relationship with her classmates and she does not have any motivation to continue education and many times decided to drop off school that her family prevented her from doing so.

**Measuring tool**

**Self-reported scale of behavioral problems in adolescents:** In this study, Self-reported scale of behavioral problems in adolescents is used to measure oppositional defiant in teens, which is made by Achenbach [27]. The scale is for ages 11 to 18 years with a minimum of education, suitable for the 5<sup>th</sup> level of elementary in the response time of 15 minutes and it is one of the common screening tools for psychiatric disorders in adolescence. In this scale, items are set based on the disorders of Diagnostic and Statistical Manual of Mental Disorders (4<sup>th</sup> edition) with some revisions in the text that are emotional problems, anxiety, physical, attention deficit / hyperactivity, conduct, oppositional defiant and normative problems. The items of this scale are three choice as totally, usually, and at all which respectively have the score of two, one, and zero. The validity of this questionnaire is investigated. The subscales of the oppositional defiant reliability in the present study using Cronbach's alpha coefficient is estimated 0.75.

**Leahy Emotional Schema Questionnaire:** Leahy Emotional Schema Scale based on a model by his emotional schemas and it was developed as a self-reported scale to clarify people's beliefs and strategies in the face of emotions and emotional schemas in 2002. This scale has 50 items which are scored by Likert 5 degree scale. The internal consistency of emotional schemas questionnaire is required using 0.86 Cronbach's alpha.

**Executing Methods and Data Analysis**

For ethics and to draw student collaboration, before executing the treatment some information on the object and the purpose of the study was offered to the students to the extent that do not affect the results and after satisfying the participants about the fact that their information is not going to be analyzed individually and they are autonomous in their research and whenever they want they can get out of the sample. Before the intervention, all three subjects were observed for 4 sessions and just Leahy Emotional Schema was conducted on them and no intervention was not done on understudied subjects; thus their baseline was determined. After the baseline session, emotion processing management strategies was performed individually for each participant. The intervention included 8 sessions of instruction, each week a meeting during each session participants were trained individually for 45 minutes (After 2 sessions, the test was performed for subjects). As a follow-up condition, after 8 sessions of Gross emotion regulation, the follow-up test was conducted on the subjects a month later over 3 consecutive months.

**Table 1.** Treatment protocol based on Gross model

Content	Sessions
<b>First Session</b>	The expression of logic and intervention session, the necessity of emotion regulation, why do we need to learn this skill, what are the just views about the emotions, an overview n the primary and secondary emotions, all emotions help us
<b>Second Session</b>	Training and introducing emotion, identifying and naming and labeling emotions, distinguishing between different emotions, identifying physical and psychological state of excitement, success factors in emotion regulation
<b>Third Session</b>	Self-assessment to determine their emotional experiences, emotional self-assessment to identify vulnerabilities in individual, self-assessment to identify strategies to regulate the individual, cognitive consequences of emotional reactions, The consequences of physiological reactions, emotional,

	behavioral consequences of emotional reactions and the relationship between these three together, introducing anger and ways to overcome them
<b>Forth Session</b>	Preventing social isolation and avoidance, training, problem solving, interpersonal skills (communication, expression and conflict resolution)
<b>Fifth Session</b>	Stopping Mental Rumination and anxiety, training attention
<b>Sixth Session</b>	Identifying false assessments and their effect on emotional states, training the strategies of reassessment
<b>Seventh Session</b>	Identifying the amount and the use of prevention strategies and exploring its emotional consequences, confronting, training expressing emotion, behavior modification through environmental amplifier, training releasing emotion, relaxation and reverse acting
<b>Eighth Session</b>	Evaluating the amount of reaching goals, the application of skills learned in a natural environment outside of the meeting, reviewing and removing barriers in doing homework

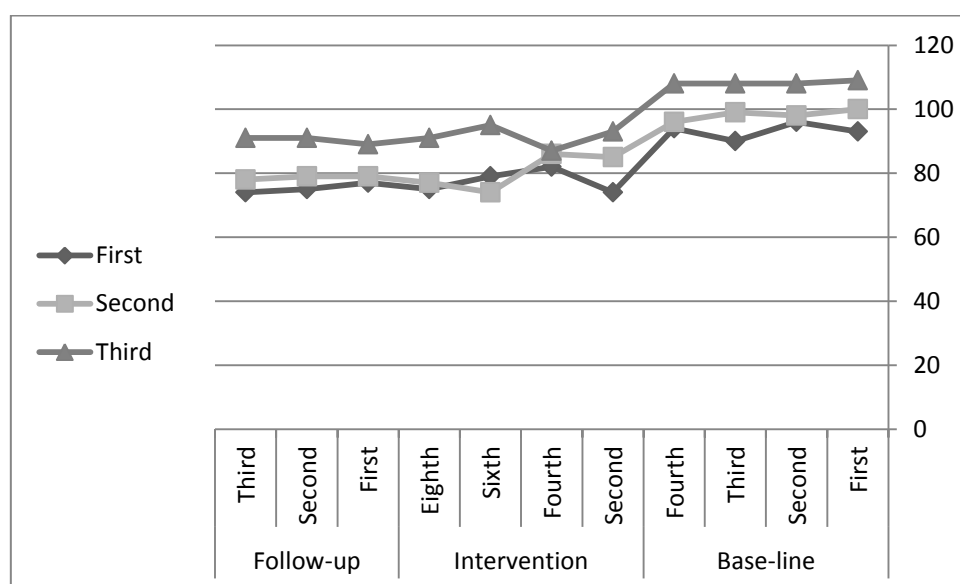
**Results**

In order to analyze and interpret collected data, according to the single subject of change indicators, tilt, and rate variability was calculated for each participant and the emotional schema changes during meetings are separately shown on the graphs. In table 2, changes in the intensity of emotional schemas scores are shown for each subject during meetings intervention.

**Table 2.** Changes in emotional schemas scores relating three subjects at baseline, intervention, and follow-up

Follow-up			The Intervention				The Baseline				Subject
Session 3	Session 2	Session 1	Session 8	Session 6	Session 4	Session 2	Session 4	Session 3	Session 2	Session 1	
74	75	77	75	79	82	74	94	90	96	93	First
78	79	79	77	74	86	85	96	99	98	100	Second
91	91	89	91	95	87	93	108	108	108	109	Third

As it is shown in table 2, the scores of each three subjects has decreased in emotional schemas and these changes sustained till the end of sessions. In figure 2, you can see changes in scores in emotional schemas.



**Figure 2.** Changes in emotional schemas scores in research sessions

The visual inspection of the effectiveness of charts and the size of impact factor represents a significant decrease in the emotional schemas of all three subjects. This change in Table 3 is discussed based on the slope and the variability of scores of subjects.

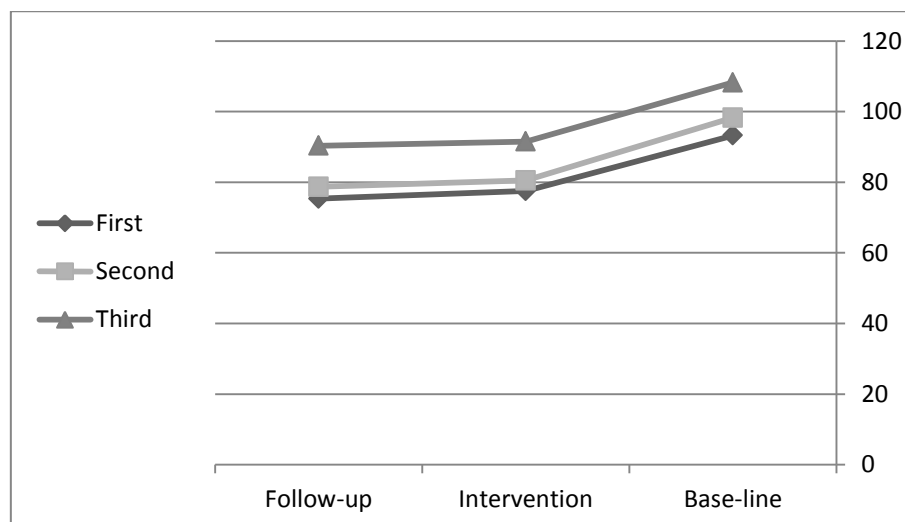
**Table 3.** The indicators of process changes, slope, the amount of variability, and effect size of students' scores in emotional schemas

Effect Size	Cohen Variability	Increasing Percent Of Scores	The Rate Of Recovery After Treatment	The Standard Deviation	The Intervention Mean	The Standard Deviation	The Baseline Mean	Subject
0.93	4.99	-16.89	75.33	3.69	77.5	2.5	93.25	First
0.96	6.85	-18.07	78.67	5.91	80.5	1.71	98.25	Second
0.89	4.08	-15.47	90.33	3.42	91.5	0.5	108.25	Third

In the examination of the main hypothesis of the research, beside descriptive study of emotional schemas the line graph for scores was used in before and after the intervention, the intervention mean, and the increasing percent of scores, Cohen's variability, and the effect size. The negative sign in the increasing percent of scores demonstrates the decrease of scores.

Table 3 represents that in the pre-test or baseline, the mean score of emotional schemas is 93.25 for the first participant. In the experimental intervention, her mean score was 77.5 which indicates the decrease of variable. The average improvement after treatment is 75.33 which is also decreased and the percentage of the rise of the scores is 16.89- that shows the -16.89 amount of decrease. The average of this variable in the pre-test of the second test is 98.25. In the experimental intervention, this score is reduced to 80.5 that indicates a significant change in this variable; the amount of recovery is 78.67 which also shows the reduction. The percentage of the rise of the scores is -18.07 that shows the scores for this participant is reduced to the size of 18.7 percent. The pre-test average of the emotional schemas score is 108.25 for the third participant. In the experimental intervention this score is reduced to 91.5 and in the follow-up to 90.33 which represents the significant reduction in the score of this variable; the percentage of increase is estimated as 15.47. Generally, emotion processing management strategies is affective in the treatment of emotional schemas' amount for all subjects. The obtained effect size shows that the impact of interventions for all three subjects is approximately 0.8 and more than that. Cohen amount of variability in all three subjects is more than 1.96 and the obtained size effect of all three participants is more than 0.8 and is great (first student 0.93, second student 0.96, and third student 0.89) that shows the effect of treatment was high on the improvement of emotional schemas in all three subjects.

The data of table 3 show that the amount of improvement and reduction of scores are significant in all three subjects, in other words, it can be said that emotion processing management strategies are affective in emotional schemas for female teenage suffering from oppositional defiant. The visual inspection of the improvement process of the emotional schemas amount in the pretest, post-test, and follow-up levels is presented in Figure 3.



**Figure 3.** Reviewing emotional schemas' scores in pre-test, post-test and follow-up for all three subjects

## **Discussion and conclusion**

The general aim of this study was to evaluate the effectiveness of the training of emotion processing management in the emotional schemas of adolescents with oppositional defiant disorder. The results showed that training emotion regulation skills in emotional schemas can be effective on female teenage with oppositional defiant teens. There are different studies in the relation with the effect of adaptive emotion regulation strategies in psychology but there is no study to check the effect of adaptive emotion regulation strategies on emotional schemas of adolescence suffering from oppositional defiant disorder in psychology; so the researches of Barlow et al. [11] ; Ronen [10]; Leahy [28] ; Gupta et al. [12] ; Chapman et al. [13] Fairburn et al. [14] ; Axelrod et al. [15]; Szasz et al. [16] ; Leahy [29] ; Webb et al. [17]; Utomo [19] ; Verzeletti et al. [18]; Erin A. Kaufman et al. [20]; Schoorl et al. [21] can be considered in line with this research.

In explaining the findings of the research, it can be stated that emotions play a vital role in the development of emotional disorders. Emotions are multi-dimensioned phenomenon that are partly mental emotional states which are used to make us feel in a certain way. The emotions are a chain of automatic actions that reach their underlying emotional schemas' chain due to their emotional nature and act in the role of its construction and continuation [30]. In fact, emotions are the constructive factors of an emotional schemas [31] . Based on this, it can be said that the emotional schemas due to containing people's beliefs toward the emotions and the way of experiencing, and answering them are involved in the outbreak, escalation and continuation of negative emotions and psychological harm of individual. Accordingly, adolescents with oppositional defiant disorder in ambiguous and threatening situations show more oppositional behavior. When they want to judge someone's personal conduct, they selectively less consider the opposite points because of emotional cognitive distortions, cognitive irrationality, and beliefs and schemas dysfunction [30]. Therefore, adolescents with oppositional defiant disorder experience a wide range of emotions. According to this type of emotional schemas, these emotional problems are often the result of evaluating and interpreting their feelings and strategies used to cope with these emotions[7] . Hence, with the consideration of findings based on the emotional schemas in individuals with oppositional defiant, other research results show that whatever the negative beliefs be more activated than other emotions or emotional schemas, people in regulating their emotions will face more problems. Hereupon, in explaining the impact of cognitive emotion regulation strategies in emotional schemas of adolescents with oppositional defiant, it can be argued that emotional cognitive regulation besides having an influence on cognitive distortions and the raise of awareness of teen from irrational cognitions and beliefs' dysfunction and schemas, it insists on the facilitation of their understanding of the impact of these cases on the emotional and behavioral. As a result, having a positive emotional schemas with influencing the emotional and psychological adjustment mode and influencing the cognitive strategies that are used to respond to the emotions associated with the interpretation of an individual of an event and through improving the skills modification, acceptance, and tolerance of negative emotions, tries to give meaning to emotions, puts emotions in the context of a meaningful life and its values to be worthy of life and thus improve emotion regulation in adolescence suffering from oppositional defiant.

All in all, due to the unfortunate consequences of emotional schemas in the use of incompatible strategies for regulating emotions and the outbreak of multiple physical and mental disorders, teaching the techniques of cognitive emotion regulation and the correction of problematic emotional schemas likely to improve the ability of people to manage, accept, and tolerate negative emotions and prevents the use of incompatible strategies for regulating emotions and the outbreak of disorders that their core are emotional disorder. Ergo, as Leahy et al. [31] also suggest we can identify and modify the emotional schemas of people, change the dysfunctional emotion regulation strategies, and prevent the continuation and development of emotional disorders. So, it is recommended to these people through identifying and reducing non-adaptive strategies and learning more adaptive strategies reduce their emotional problems and injuries, and with full training and long-term practice convert these strategies to their automatic cognitive function. Alternating more positive cognitive regulating strategies results in successful encountering and an increase in coping with crisis, thereby, enabling them to overcome their negative feelings. Therefore, it is recommended that researchers and therapists pay attention to cognitive emotion regulation strategies in adolescence as an important factor in their preventive and therapeutic factors in psychological clinics and at schools. One of the limitation of this study is that the study was conducted only on young girls, so care must be taken in generalizing the results to other age groups and boys; on the other hand due to the low sample size in generalizing the results careful attention should be applied; the next limitation of this study is based on the fact that both treatment and evaluation was performed by one person that it would cause bias in the interpretation of the data, additionally, more follow-up tests are recommended in logical intervals to examine the strong and weak points, also to assess the effect of interventions in long-term.

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