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Original Article

The Effectiveness of Emotional Intelligence Program on Psychological Manifestations in Patients with Oppositional Defiant Disorder

Mahdieh Golestanpour[1*], Afshin Salahian[2]

[1]*Department of Psychology, Islamic Azad University, Science and Research Branch, Tehran, Iran*
[2]*Department of Psychology, Payame Noor University, Tehran, Iran*

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Abstract

Background and Aim: Oppositional defiant disorder (ODD) is associated with violence, disobedience, stubbornness, anger, and aggression. The role of promoting emotional intelligence on psychological manifestations such as aggression and social anxiety has not been studied.

Materials and Methods: In a pilot randomized clinical trial, during October 2017 to March 2018, 30 adolescents with a diagnosis of ODD were purposefully selected. Subjects were divided into two groups through block randomization (BR). Emotional intelligence education was provided to the experimental group in the form of eight one-hour weekly sessions and the control group was placed on a waiting list. Participants answered the questionnaires of emotional intelligence, social anxiety, and aggression in two time periods before and after treatment. Data were analyzed using multivariate analysis of covariance in SPSS software version 21.

Results: Preliminary results showed that the intervention of emotional intelligence education had a significant effect on the indicators of aggression, emotional intelligence, and social anxiety (*all p's* <0.05). Secondary outcomes showed that this intervention was effective on the indicators of physical discomfort and social anxiety (p >0.05).

Conclusion: The findings of the present study indicate the effective role of emotional intelligence education on psychological indices such as aggression, emotional intelligence and social anxiety. These findings could be associated with clinical applications in the prevention and treatment of oppositional defiant disorder in adolescents.

Keywords: Emotional intelligence, Aggression, Anxiety, Oppositional defiant disorder, Adolescence

***Corresponding Author:** Mahdieh Golestanpour, Department of Psychology, Islamic Azad University, Science and Research Branch, Tehran, Iran. Email: mahtab.golestanpour@gmail.com.
ORCID: 0009-0008-5809-6312

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Introduction

Intelligence refers to the ability to receive, understand and use symbols, which is an abstract ability. Intelligence includes many dimensions including verbal, spatial, social, and emotional (1). Emotional intelligence refers to the ability to perceive and use emotional information. Emotional intelligence reflects the ability of the emotional system to improve and enhance intelligence (1). The initial definition of emotional intelligence was first developed in 1990 in collaboration with Peter Salovey. In this initial definition, a two-part approach is used. The first part of this approach was the general processing of public information, and the second part was the specification of the skills used in such processing (1). Meyer's first definition of emotional intelligence involves a type of emotional information processing that includes the proper evaluation and expression of emotions and the adaptive regulation of emotions. The theory of the attribute of emotional intelligence was proposed by Petrides in 2001, which describes our perception of our emotional world (1). Research background shows that emotional intelligence has a significant effect on social performance (2). There is also a significant relationship between emotional intelligence and learning (3). In addition, studies show that emotional intelligence is a significant predictor of resilience index (4). Also, emotional intelligence in students has a significant negative relationship with burnout and academic anxiety (5). Emotional intelligence is defined as an educational framework for mental health professionals and therapists in the field of children and adolescents (6). Therefore, it has clinical attention.

Oppositional defiant disorder (ODD) is a behavioral disorder that is common in children and adolescents. Children with ODDexhibit a range of behaviors associated with violence, disobedience, stubbornness, and anger toward those in a position of power (7). The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) lists criteria for diagnosing ODD. The DSM-5 criteria include emotional and behavioral symptoms that last at least six months.These children are extremely sensitive to the reactions of others and resist the orders and requests of others and engage in argument and disobedience. Disobedient children face widespread problems in communities such as groups of friends, classmates, and even in higher ages in the workplace (7). One of the consequences of oppositional defiant disorder is the emergence of a disorder in interpersonal relationships and social anxiety. Children with ODD are uncooperative, defiant, and hostile toward peers, parents, teachers, and other authority figures. They are more troubling to others than they are to themselves.

Social anxiety disorder (SAD) is mentioned as one of the general problems of mental health, which includes avoiding interaction in social situations, which plays a key role in many interactive and health problems (8). SAD also known as social phobia, is an anxiety disorder characterized by sentiments of fear and anxiety in social situations, causing considerable distress and impaired ability to function in at least some aspects of daily life

Patients with social anxiety fear the negative evaluation of others. These people avoid any social situation that they think might embarrass them. Redness, excessive sweating, tremors, palpitation, nausea, and stuttering are physical psychological symptoms of social anxiety (9).

Morphologically, the gray matter volume in the right middle temporal gyrus (MTG) is related to the processing of emotions concerning to emotional intelligence (8). In fact, emotional intelligence mediates the effect of MTG on social anxiety. Findings of the study show that mood and emotional abilities have a significant effect on emotional intelligence and thus affect mood indicators and therefore promoting emotional intelligence can reduce anxiety (10). The findings of Couette et al. (11) show that disorder in emotional intelligence and social cognition is fundamental factors in the pathology of anxiety disorders, including post-traumatic stress disorder. In educational sting, students with emotional intelligence traits are more resilient and show less anxiety symptoms (12).

Aggression is a social behavior that is necessary in order to provide resources and defend oneself and one's family (13). Due to its essential function in competition and thus the survival of living things, this

behavioral index is widely observed among animal species, including humans. Behavioral aggression is one of the problems of adolescence from a behavioral point of view and looking beyond survival.

Aggression is overt or covert, often harmful, social interaction with the intention of inflicting damage or other harm upon another individual, although it can be channeled into creative and practical outlets for some. Aggression is characterized by four components: verbal, physical, hostility and anger. In fact, hostility represents the cognitive aspect of aggression and anger, reflects its emotional aspect. Behavioral aspects of aggression also occur verbally and physically, and there are gender differences (14, 15). Aggression usually increases significantly during adolescence and adulthood ages. Lack of control over aggression causes physical, social, and psychological complications. Aggression can also affect culturally and socially and grow in a context of prejudice (16). Findings from the study by Chamizo-Nieto et al. (17) show that higher emotional intelligence as a protective factor predicts lower rates of aggression and cyberbullying. The results of Segura et al. (18) study also show that cyber aggression and online violent behaviors are less common in people with high emotional intelligence, which reflects the role of emotional regulation in controlling aggression. In addition, the findings of the study by Alvarado et al. (19) indicate an inverse relationship between ability of emotional intelligence (AEI) and bullying index. In this regard, Estévez et al. (20) in their study showed that emotional intelligence can affect cyberbullying through the index of emotional adjustment.

Accordingly, and considering the existence of a research gap in evaluating the effectiveness of emotional intelligence program, the present study is the first research conducted in this field aimed to investigate the effectiveness of emotional intelligence program on reducing aggression and social anxiety in adolescents diagnosed with oppositional defiant disorder.

Methods

The present study was a pilot randomized clinical trial that was conducted during October 2017 to March 2018. In this study, 30 adolescent boys aged 12 to 18 years with a diagnosis of ODD were purposefully selected and entered the study process after meeting the necessary criteria.

Inclusion criteria were age range of 12-18 years; Diagnosis of ODD based on the diagnostic criteria of DSM-5; Living in Tehran and obtaining informed written consent from parents. Exclusion criteria were also: Absence of more than two meetings in the treatment process. Subjects were divided into two groups through block randomization (BR) method. Emotional intelligence program was provided to the experimental group in the form of eight one-hour weekly sessions and the control group was placed on a waiting list. Participants answered the questionnaires of emotional intelligence, social anxiety, and aggression in two time periods before and after treatment. Data were analyzed using multivariate analysis of covariance in SPSS software version 21. All stages of the research were based on the latest version of the Helsinki Declaration.

Materials

Demographic checklist

This questionnaire was prepared and used by the researcher to collect personal information such as parents' age, children, and parents' education.

Structured Clinical Interview (SCID)

It is a clinical interview used to diagnose Axis I disorders based on the DSM-IV. The reliability coefficient between evaluators for SCID is reported to be 0.60 (21). Diagnostic agreement of this instrument in Persian language has been desirable for most specific and general diagnoses with reliability higher than 0.60. Kappa coefficient for all current diagnoses and lifetime diagnoses has been obtained 0.52 and 0.55, respectively (22).

Emotional Intelligence Questionnaire

This tool was designed by Schutte et al. (23) with the aim of assessing emotional intelligence. This questionnaire contains 33 items which is designed based on the model of Salvi and Mayer (1990). The questions of this questionnaire are scored in three categories: emotion regulation, deployment, and evaluation, based on a five-point Likert scale from one

(strongly disagree) to five (strongly agree). Schutte et al. (23) reported the retest reliability of this scale as 0.78. In the present study, this coefficient was estimated to be 0.87.

Conner's Social Phobia Inventory (SPIN)

This questionnaire is a 17-item scale designed by Connor et al. This questionnaire has three subscales of fear (6 items), avoidance (7 items) and physiological discomfort (4 items) and scoring is based on the 5-point Likert scale (0 = not at all, 1 = low, 2 = to some extent, 3 = much, 4 = too much). Findings of the study by Mörtberg et al (9) showed that this tool has acceptable convergent, divergent validity and internal reliability.

Buss-Perry Aggression Questionnaire (BPAQ)

This questionnaire was designed by Buss and Perry (1992) aimed to assess the aggression index. This tool contains 29 items that are scored in the form of a five-point Likert scale and four dimensions of verbal aggression: items 1 to 5; Physical aggression: items 6 to 14; anger: items 15 to 21; and hostility: items 22 to 29. Scores range from 29 to 145. The high score in the subscale and in general also indicates aggressive behaviors. Buss and Perry (24) reported the internal reliability of this tool as 0.89. In the present study, the reliability coefficient of this tool was estimated to be 0.79.

Results

The average age of the participants was 14.73% and 63% of their parents had a university education. Also, 21% of participants had a history of arrest and 4% had a history of imprisonment.

Analysis of covariance was used to analyze the data by removing the effect of pretest. Before using the parametric test of analysis of covariance, its hypotheses were tested. The hypothesis of normality of the distribution was verified and confirmed by Kolmogorov–Smirnov test ($p > 0.05$). Also, the results of Leven test showed equality of variances ($p > 0.05$).

The distribution of scores of study participants in the indices of aggression, social anxiety and emotional intelligence is presented in Table 1.

In order to compare the two groups in terms of the studied indices, multivariate analysis of covariance test was used, the results are presented in Table 2.

The results of Table 2 show that there is a significant difference between the two groups in the mean scores of aggressions, emotional intelligence and social anxiety (*all p's*<0.05). The results also show that 34, 47 and 45 percent of the difference in variance between the two groups was due to educational intervention, respectively. Findings from the study of intergroup effects are presented in Table 3.

As can be seen in the findings of Table 3, the intergroup effects are significant on all scales and subscales except physical discomfort from the social anxiety subscale (*all p's*<0.05).

Discussion

The present study was conducted to evaluate the effectiveness of emotional intelligence education on reducing aggression and social anxiety in adolescents with a diagnosis of oppositional defiant disorder. This study was the first research conducted in this field. The results showed that the intervention of emotional intelligence education had a significant effect on the indices of aggression, emotional intelligence, and social anxiety. However, the effectiveness of this intervention on the index of physical discomfort in the social anxiety subscale was not observed effective. As mentioned, the present study was conducted for the first time and no similar study was found in the PubMed database. However, previous studies have

Table 1. Mean and standard deviation of research variables**.**

Variable / Group		Aggression		Social anxiety		Emotional intelligence	
		Pre-test	**Post-test**	**Pre-test**	**Post-test**	**Pre-test**	**Post-test**
Experiment	Mean	83.30	68.76	23.61	12.53	103.15	123.15
	Std. deviation	13.55	12.80	15.52	9.21	17.02	20.84
Control	Mean	83.23	83.23	24.30	23.46	103.15	103.53
	Std. deviation	13.46	12.41	14.49	13.53	16.68	16.74

Table 2. Results of multivariate analysis of covariance**.**

Variable	Effect	Value	F	Significance	Eta^2	Statistical power
Group	Pillai's Trace	0.97	17.55	0.003	0.97	0.99
	Wilks' Lambda	35.10	17.55	0.003	0.97	0.99
	Hoteling	35.10	17.55	0.003	0.97	0.99
	Rooting	0.97	17.55	0.003	0.97	0.99

Table 3. Findings related to the study of intergroup effects**.**

Source	Variable	Sum of squares	Df	Mean of squares	F	Sig.	Eta^2	Power
Group	Verbal aggression	89.77	1	89.77	19.10	0.001	0.57	0.98
	Physical aggression	106.91	1	106.91	5.66	0.03	0.28	0.60
	Anger	193.93	1	193.93	14.52	0.002	0.50	0.94
	Hostility	69.83	1	69.83	8.28	0.012	0.37	0.76
	Total aggression	908.16	1	908.16	7.46	0.016	0.34	0.72
	Fear	91.49	1	91.49	9.30	0.009	0.40	0.81
	Avoidance	94.07	1	94.07	5.30	0.037	0.27	0.57
	Physical discomfort	8.67	1	8.67	1.21	0.29	0.08	0.17
	Total social anxiety	546.87	1	546.87	11.56	0.004	0.45	0.88
	Emotional Intelligence	1922.79	1	1922.79	12.65	0.003	0.47	0.91

shown an association between promoting emotional intelligence and reducing aggression and antisocial behaviors. In line with our hypothesis, Estévez et al. (20) in their study showed that emotional intelligence can affect cyberbullying through the index of emotional adjustment.

Also, the findings of the study by Alvarado et al. (19) indicate an inverse relationship between ability of emotional intelligence (AEI) and bullying index. In addition, the findings of the study by Segura et al. (18) showed that cyber aggression and online violent behaviors are less common in people with high emotional intelligence, which reflects the role of emotional regulation in controlling aggression. In contrast, the findings of the study by Chamizo-Nieto et al. (17) showed that higher emotional intelligence as a protective factor predicts lower rates of aggression and cyberbullying.

Research background shows that people's level of emotional intelligence is not constant and can be improved, and if people's awareness of the benefits of emotional intelligence increases, more people will try to invest in their emotional intelligence to increase their success in life.

As people become aware of their emotions, they will try to understand the impact of their emotions on their interactions with others, so that such awareness can have a positive effect on their social relationships and teamwork. Awareness of anger and aggression as a result of the present intervention seems to reduce the symptoms of aggression. Encephalography studies show that even when the thinking brain or neocortex reaches the decision-making stage, the amygdale can control behavior. In fact, amygdale function and its interaction with the neocortex form the basis of emotional intelligence. Also, executive functions and metacognitive awareness components, play a vital role in one of the most important foundations of emotional intelligence (25).

Social anxiety is basically the fear of being watched by others. This fear may be somewhat inherent, but when the gaze of others, whether intentional (real) or imaginary causes extreme discomfort in certain situations, it results in "social anxiety". Thus, the main characteristic is social anxiety, excessive fear of being watched or closely watched by strangers. Reducing adolescents' social anxiety can also be due to improving their communication skills. Because the ability to know and empathize with others, communicate effectively, listen deeply, and ask important questions, work together and negotiate are components of this skill.

This study had some limitations in the implementation process. The mere use of the questionnaire tool can be considered as one of the limitations of this study. It is suggested that in future studies, in addition to paper

and pen tools, biological evaluations such as plasma cortisol evaluation (26, 27) be used to evaluate the effects of emotional intelligence program.

Conclusion

The present study was the first study to evaluate the effectiveness of emotional intelligence education on reducing aggression and social anxiety in adolescents diagnosed with oppositional defiant disorder. The results showed that the intervention of emotional intelligence education had a significant effect on the indices of aggression, emotional intelligence and social anxiety. These findings may be associated with clinical applications in the prevention and treatment of oppositional defiant disorder in adolescents.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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