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THE EFFECT OF GROUP EMOTİONAL INTELLİGENCE TRAİNİNG ON EMOTİONAL INTELLİGENCE STRENGTHENİNG İN ADOLESCENTS WİTH ATTENTİON DEFİCİT AND HYPERACTİVİTY DİSORDER (ADHD)

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ABSTRACT

Introduction: According to the results obtained in many of the studies reporting substantial effects by emotional intelligence on the individuals' success, life and education and due to the problems and discordance in adolescents with ADHD, the necessity to pay a greater deal of attention to this issue as well as the high prevalence of the disease among the adolescents and the scarcity of the studies performed in this field in Iran, the current research paper aims at investigating the effect of group emotional intelligence training on the emotional intelligence strengthening in the adolescents with ADHD who have referred to Specialized and Super-Specialized Psychiatric Centers in the city of Tabriz.

Materials and Methods: The present study is a clinical trial that was conducted on 76 adolescents with ADHD, ranging in age from 11 to 16 years, who were chosen based on a convenience method featuring pretest-posttest-follow-up test and a control group. The study population encompassed on all the Child and Adolescent Super Specialized Clinics in Tabriz including Tabriz's Razi Child and Adolescents' Training and Therapy Center and Tabriz's Bozorgmehr Psychiatric Clinic. Sampling was carried out through an observation of the inclusion and exclusion scales and the study sample volume was selected randomly based on random four-block sampling method. After being subjected to the pretest, the study sample volume was assigned to two control and test groups. The data acquired through inferential statistics including Chi-square test, independent t-test, Pierson correlation coefficient and k-s test were analyzed in SPSS software, ver.22.

Findings: the study results indicated that there is a significant difference between the mean hyperactivity scores pre- and post-intervention (P<0.0001). In terms of emotional intelligence evaluations on both genders in a 0.39 level, the results are expressive of the idea that there is no significant difference and that both of the genders enjoyed an equal amount of emotional intelligence. Hyperactivity rates were also found statistically significant in a 0.03 level. The intergroup significance level before and after intervention was 0.01. Also, the results are indicative of the positive effects of emotional intelligence on the studied groups.

Discussion and Conclusion: since adolescence is considered as a highly stressful life period during which the intellectual and emotional axes of the child undergo a lot of variations and the adolescents are at the verge of entering another stage of life, there is a need for a far greater attention to be paid thereto as well as its motivational, emotional and cognitive aspects. It is through increasing the emotional intelligence that we can identify the adolescents' self-awareness and their needs and it is through training the adolescents that they can be largely assisted to define goals and find their own ways to achieve them. When such self-awareness comes about, they can develop sympathy and identify the emotions and feelings of the therapists and take effective measures in line with solving their own as well as the therapists' problems.

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Introduction

Intelligence is an asset for the human beings. Intelligence enables the individuals to stay alive and succeed. Intelligence is the foundation of academic achievement. Intelligence provides the individuals with the faculty to

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ponder, carry out complicated thinking, reason and solve problems. It helps the individuals to learn from their prior experiences and adapt themselves to the environment [1]. Emotional intelligence (EI) which is a combination of two states, namely "cognition" and "emotion", is an immediate survival program that is trusted in us by the evolution. The term "emotional intelligence" was first proposed by Mayer and Salovey. Its preliminary pattern incorporated three competency areas: a) one's own evaluation and expression of emotions; b) regulation of the emotions in oneself; and the others and c) exploiting the emotions [2]. There are evidences that indicate that positive use of emotions protect the individuals against the various types of psychological pressures that may lead to the emergence of various types of psychological and behavioral problems including aggressiveness, depression and hyperactivity [3]. The children capable of getting sophisticated in the three aforementioned areas reminded by Mayer and Salovey can better control their emotions and enjoy a greater deal of satisfaction [4]. Unlike the cognitive intelligence or intelligence quality (IQ) that remain almost fixed till the end of adolescence or gradually undergo decline with an increase in age and, thus, they cannot be changed via training and experience, emotional intelligence competencies (EI) can be taught to children and it can be subjected to a continuous enhancement till the end of life [5].

The studies undertaken on the emotional intelligence have shown that it is an effective factor determining the real life outcomes such as success at school and education, success at work and interpersonal relationships and generally physical and psychological health activities [10, 11]. Considering the increase in behavioral and emotional problems from low self-confidence to depression and anxiety in children and adolescents, any parents, scientists and researchers from all around the globe know it necessary to train them with the necessary skills in regard of the emotional intelligence. These skills result in an increase in adaptation and greater success likelihood even in seriously risky situations [12]. Attention deficit and hyperactivity disorder is the most common behavioral-nervous irregularity [6] that has been the focus of general, scientific and clinical attentions during the recent years [7]. Besides the three essential symptoms, namely a lack of attention, hyperactivity and arousal [8], the individuals with ADHD are most often characterized by such traits as provocative, intrusive, restlessness, disorganized, aggressive, tense and emotionally aroused and they are also found with other secondary problems. The most important of these characteristics are: low level of academic efficiency, low level of self-respect, opposing attitudes, antisocial behaviors, being repelled by the others of the same age, family relationship disorders, special cognitive and meta-cognitive deficiencies, special sensory-motor deficiencies and sleep problems. On the other hand, high level of sensation-seeking in the individuals with ADHD and the problems in emotional intelligence makes them do dangerous activities [9]. To improve the performance in these adolescents in the areas they are seemed troubled such as academic problems, social compliance, and dangerous behaviors and so forth, there is a need for behavior therapy to be, as well, accompanied with the therapy program.

Studies have demonstrated that emotional intelligence (EI) is a better predictor of the individuals' success in life than intelligence quality (IQ). The individuals with higher emotional adequacy feature better social skills, more long-lasted relationships and a greater ability in solving the conflicts. Although the human beings are naturally and genetically different in the way they regulate and express their emotions, learning through training can cause the individuals in whatever the level to elevate their abilities. The individuals with better emotional adequacies are more capable of concentrating on the problems and employing problem-solving skills which will be followed by an increase in their cognitive abilities. Thus, emotional intelligence training can be of a considerable contribution to the dissolution of such a disorder [13].

Studies on the relationships between emotional intelligence with aggression and anger indicate that there is an inverse relationship between them. Among these studies, the research proposed in [14] indicates that there is a significant relationship between the emotional intelligence antisocial behaviors and aggressiveness. The effect of emotional intelligence interventions on aggression in adolescents was investigated in a study. The results were reflective of the emotional and social interventions [15].

It was shown in a study carried out on the effectiveness of emotional intelligence on aggression in boy adolescents that aggression was reduced in the experimental group who had received 10 one-hour sessions of emotional intelligence training as compared to the control group who had not been subjected to such sessions [16]. Another study indicated that emotional intelligence training exerts positive effects on aggression reduction [17].

In more than half of the cases, psychiatrists commence hyperactivity disorder treatment by a combination of medications and psychotherapy and the sole prescription of medication is only used in a few cases because it seems that sole prescription of drugs does not suffice such individuals' treatment. Also, the efficiency of the

complementary psychotherapeutic interventions has not only been proved in short-term but also in long-term [18].

Psychotherapeutic methods as supplementary treatments along with medications have been greatly studied in regard of hyperactivity disorder, including behavioral-cognitive therapy, psychological training, interpersonal therapy and family therapy interventions [19]. Corresponding to the investigations performed herein and according to the important role of the nurses in training the patients with psychological disorders and the role played by emotional intelligence training in the mitigation of the psychological disorders as well as for reasons such as the high prevalence of such a disease among the adolescents and due to the scarcity of the studies conducted in this regard in Iran, the current research paper aims at investigating the effect of group emotional training on strengthening the emotional intelligence in adolescents with ADHD who had referred to specialized and super-specialized psychiatric centers in Tabriz in the format of a clinical trial featuring pretest, posttest and follow-up tests with a control group and an experimental group.

The present study is a clinical trial that was conducted through taking into account a 95% confidence level and a test power of 80% within a two-tailed test with about 15% of variations from the studies carried out by Fathi et al, called "the effect of emotional intelligence training on the aggression and hyperactivity reductions in the girl students with lower physical-motor abilities" (Dissertation 33). The present study made use of a convenience method as a result of which 76 eleven to sixteen-year-old adolescents with ADHD were selected from all the Child and Adolescent Super Specialized Psychiatric Clinics including Tabriz's Razi Child and Adolescent Training and Therapeutic center and Tabriz's Bozorgmehr Psychiatric Clinic. After written consent letters were acquired from the parents or legal guardians, sampling was executed through an observation of the inclusion and exclusion criteria. Then the study population was subjected to pretests and the study sample volume was randomly assigned to two control and experimental groups based on a random four-block design. The study inclusion scales were: 1) the existence of ADHD according to DSMIV-TR scale accompanied with a diagnosis by the child and adolescent psychiatrist as well as identification of its intensity by taking advantage of Conners parent questionnaire; 2) being subjected to treatment by methylphenidate, 0.5-1 mg/kg; 3) being in an age range from 11 to 16 years; 4) having the ability to sit down and listen in group therapy sessions; 5) having the ability to respond to the written questions; and, 6) having no physical disease or other substantial psychiatric disorder than this one. Absence for more than two emotional intelligence group therapy sessions, a past history of receiving non-medication treatments for emotional intelligence based on the parents or teachers' sayings were among the exclusion criteria. The study tool was a researcher-made questionnaire the first part of which pertained to the study sample volume's individual-social characteristics (age, gender, education level, parents' ages, their education, employment status, the number of children in the family, the number of children before the individual with ADHD, the duration of the disorder, family history of the diseases and disorders, hospitalization history) and the second part of the questionnaire was Shot's standard questionnaire [33] which was used to assess the adolescents emotional intelligence [43]. The factors that are evaluated in this test are as stated in the following words. Factor One: emotion regulation which refers to an ability to consistently confront with the negative or opposing emotions by the use of self-regulation methods followed by an improvement in the state intensity and the duration of such emotions as well as encompassing the capability for the creation of joyful conditions for the other individuals and hiding the negative emotions to avoid harming the other individuals' feelings. Factor Two: an appraisal of the emotion expression which refers to the ability in recognizing and understanding one's own as well as the others' emotions based on situational and expressional clues the emotional denotations of which are accompanied by a cultural agreement. Factor Three: deploying the emotion that incorporates the ability to make use of emotional information in thoughts, practice and problem-solving [33]. The third part embraced Conners parent questionnaire (CPRS-R) which is exclusively designed for the children and adolescents ranging in age from 3 to 17 years. The questionnaire contains 27 phrases which are scored based on a four-point scale (from 0=never to 3=very much). It takes one 5 to 10 minutes to complete the questionnaire. The questions are to be answered by the parents and it covers four subscales, namely oppositionality, cognitive/inattention problems, hyperactivity and an index of attention deficit-hyperactivity. If the questionnaire is completed by the parents it can identify 74% of the students with attention deficit and hyperactivity disorder and it enjoys some high 0.75 reliability and validity and it is confirmed by the psychiatrists.

Content validity test was used to determine the validity of the study tool. To do so, the questionnaire was presented to ten professors from Tabriz's Medical Sciences University and Tabriz University along with its English version. Their revisionary ideas and notions were imposed on the questionnaires afterwards. To determine the reliability of the study tool, the questionnaires were administered to 20 participants so as to determine the reliability coefficient and internal consistency of the questions via computing Cronbach;s alpha coefficient. A value equal to 0.81 was attained for the reliability of the total emotional intelligence scale based on internal alpha. The scale was subjected to factorial analysis by taking advantage of primary indicators' evaluation in terms of the following three factors, namely emotion regulation (Alpha coefficient= 0.81), emotion appraisal and expression (Alpha coefficient= 0.67) and emotion deployment (Alpha coefficient= 0.50). The internal reliability coefficients were reported in a range from 0.75 to 0.90 for Conners parent questionnaire. The acquired data were analyzed in SPSS software, ver. 22, based on inferential statistics including such descriptive indices as kurtosis and skewness [34] and k-s test, chi-square test and independent t-test as well as Pierson correlation coefficient.

Findings

The study sample volume was assigned to two 38-individual groups. The study findings indicated that the average age in each of the groups was about 15 years. In terms of education level, the participants from both of the groups were secondary school three graders. A 5 to 6-year-period was reported as the duration of the disease in both of the control and training groups. Also, it was found out that none of the study participants had a past family history of the disorder. In terms of the participants parents' age, fathers were found about 43 years old in the control group and 39 years old in the training group; in addition, mothers were found about 39 years old in the control group and 35 years old in the training group.

According to Kolmogorov-Smirnov tests, the obtained results indicated that the data enjoy a normal distribution. In data analysis regarding individual-social comparison of the study subjects based on chi-square test (χ^2), it was shown that there is no significant difference between the two groups and they are both identical (P>0.05), (Table 1).

Based on paired t-test, a significant difference was figured out between the pre-intervention and post-intervention hyperactivity mean scores (P<0.0001), (table 2). Also, there was found a significant difference (P<0.0001) in terms of gender in a comparative study of the demographic characteristics and the emotional intelligence rates obtained for study and control groups.

Table 1: comparing the social-individual characteristics of the control and intervention groups' participants

Variables	Variable levels	Intervention group Number (percentage)	Control group Number (percentage)	P-value Chi-square test
Gender	Girl	19(50%)	19(50%)	0.000
	Boy	19(50%)	19(50%)	
Age	12	3(41.3%)	3(60%)	0.19
	13	9(60%)	6(40%)	
	14	9(42.9%)	12(57.1%)	
	15	10(45.5%)	12(54.5%)	
	16	7(58.3%)	5(41.7%)	
Students' education level	Grade six	3(41.3%)	3(60%)	0.19
	First grade secondary school	9(60%)	6(40%)	
	Second grade secondary school	9(42.9%)	12(57.1%)	
	Third grade secondary school	40(45.5%)	12(54.5%)	
	First grade high school	7(58.3%)	5(41.7%)	

Disease duration	3	3(100%)	0	0.38
	4	5(62.5%)	3(37.5%)	
	5	8(34.8%)	15(65.2%)	
	6	9(39.1%)	14(60.0%)	
	7	9(60%)	6(40%)	
	8	4(100%)	0	
Hospitalization history	Hospitalized	7(53.8%)	6(46.2%)	0.035
	Not-hospitalized	31(49.2%)	32(50.8%)	
Number of hospitalizations	None	32(50%)	32(50%)	0.000
	Once	6(50%)	6(50%)	
Family history	Positive	4(57.1%)	3(42.9%)	0.046
	Negative	34(49.3%)	35(50.7%)	
Family past history of disease	None	34(49.3%)	35(50.7%)	0.14
	Mother	2(66.7%)	1(33.3%)	
	Father	2(66.7%)	1(33.3%)	
Father's age	33 to 36 years of age	11	0	0.61
	37 to 41 years of age	17	14	
	42 to 48 years of age	10	24	
Father's education level	Illiterate	2(50%)	2(50%)	0.27
	Elementary school	2(40%)	3(60%)	
	Secondary school	6(66.7%)	3(33.3%)	
	High school	11(50%)	11(50%)	
	Diploma	10(38.5%)	16(61.5%)	
	Associate's degree	4(57.1%)	3(42.9%)	
	BA	3(100%)	0	
Father's occupation	Unemployed	5(55.6%)	4(44.4%)	0.041
	Employed	33(49.3%)	34(50.7%)	
Mother's age	30 to 35 years of age	20%	5%	0.013
	36 to 40 years of age	14%	23%	
	40 to 45 years of age	1%	10%	
Mother's education level	Elementary school	1(25%)	3(75%)	0.27
	Secondary school	6(33.3%)	2(66.7%)	
	High school	12(54.6%)	10(45.5%)	
	Diploma	14(60.9%)	9(39.1%)	
	Associate's degree	3(75%)	1(25%)	
	BA	2(40%)	3(60%)	
Mother's occupation	Housewife	30(51.7%)	28(48.3%)	0.06
	Employed	8(44.4%)	10(55.6%)	
Number of siblings	0	18(47.4%)	20(52.6%)	0.08
	1	17(54.8%)	14(45.2%)	
	2	3(42.9%)	4(57.1%)	
Number of children before the one with ADHD	First	32(49.2%)	33(50.8%)	0.037
	Second	6(54.5%)	5(45.5%)	

Table 2: comparing the mean hyperactivity/attention deficit scores pre- and post-intervention in the study group

Variable	Status	Group	Mean	Standard deviation	Confidence interval	p-value paired t
ADHD	Pretest	Experimental	51.74	10.53	51.74±1053	P<0.0001
		Control	51.84	10.007	51.84±10.007	P<0.0001
	Posttest	Experimental	46.47	10.52	46.47±10.52	P<0.0001
		Control	51.82	9.85	51.82±9.85	P<0.0001

Table 3: determining the relationship between the social-individual characteristics of the adolescents with ADHD with the emotional intelligence rates of the experimental and control groups

Variable	SS	DF	MS	F	SIG
Gender	121.74	1	121.74	0.75	0.39
Hyperactivity	4464.38	31	144.01	0.888	0.036

Discussion and Conclusion:

The results of the present study indicated that the experimental group and control group mean scores for the emotion appraisal were 33.22 and 31.25, respectively. Also, 33.84 and 32.17 were calculated for the emotion regulation of the experimental and control groups, respectively; moreover, the posttest mean scores for the emotion regulation were 36.36 and 32.87 respectively for the experimental and control groups and this is reflective of a significant difference between the two groups and the exertion of an effect by the emotional intelligence training on the study participants aforementioned indices.

Posttest emotion applications were scored 34.12 and 30.49 for the experimental group and control group, respectively. The scores obtained for the posttest emotion appraisals were 37.76 for the experimental group and 31.75 for the control group. The small increase in the control group posttest scores is due to their familiarity and the pretest effects and the increase in the experimental group is expressive of the considerable effect of emotional intelligence training on the improvement of the studied variables. Based on the results obtained by Olotash and Amraghlou in their studies on 6-year-old children the training intended and expected objectives and behaviors such as emotion recognition, perception and control, sympathy and social abilities were determined and more specific goals were outlined for each of these abilities. Emotion-oriented training led to the improvement of the emotional intelligence in children which is also consistent with the results offered herein [36].

The results of the studies by Omidi et al with the objective of investigating the effect of emotional intelligence training on the strengthening of emotional intelligence in elementary school girls students and featuring pretest and posttest similar to the current research paper indicated that there is a significant difference between the two groups post-emotional intelligence training which is in accordance with the results found herein (Omidi). Behrouz et al in a study titled “comparing the children with ADHD and their normal counterparts in terms of emotional intelligence and attachment styles” resulted in the calculation of the mean scores for emotional intelligence subscales in normal children in an order of emotion regulation and emotion expression as well as in children with ADHD in an order of others’ emotion appraisal and emotion expression. In emotional intelligence and its indicators, a significant difference was found between the normal children and the children with ADHD. Generally, there was found a significant difference between the children with ADHD and normal children in terms of emotional intelligence indicators [37].

Based on a survey of the literature, it can be figured out that emotional intelligence is based on cognition and emotion and it can be improved through training meaning that self-awareness, motivation and sympathy can be elevated therewith and an appropriate array of social skills can be created in the children that causes them to develop more communication with the other individuals of the same age, be more motivated to attend the class and become more aware of the programs in line with the enhancement of the assignment fulfillment skills [38].

Since behavioral problems can emerge in any period of life in humans, being skilful in any of the emotional intelligence indicators can distinctively influence the individual and social life levels. Also, emotional

intelligence studies can help the individuals acquire the necessary information in this regard thereby to immune themselves against the behavioral problems and challenges [39-43].

As for the emotional intelligence differences in terms of gender, no significance was found in the independent t-tests in regard of emotion regulation (0.62), emotion appraisal (-1.48) and emotion deployment (-1.32) and this is reflective of the emotional intelligence training's identical effects on both girls and boys.

In a study by Fathi et al, called "the effect of emotional intelligence training on the reduction in aggressiveness and hyperactivity in the girl students with less physical-motor abilities", a negative and significant relationship was observed between the emotional intelligence of the girl students with less physical-motor abilities and their aggressiveness and hyperactivity and this complies to the results presented herein [44].

The findings by Mowla'ee et al (2009) [44] in regard of the differences in emotional intelligence in girls and boys conform to the findings obtained in the current research paper and they indicate that the emotional intelligence is similar in girls to the boys. Nazi, as well, found no significant difference between the girls and boys in an evaluation of the relationship between emotional intelligence and designing skills in architecture university students.

Since the childhood and adolescence are the most vital periods of growth and development, being psychologically healthy and managing the emotions in them can be of a great effect on the children and youths' learning and development of effective relationships and it can be greatly utilized in arranging adolescence plans. The adolescence is considered as a highly stressful and pressing life periods during which the child's intellectual and emotional axes evolve thereby preparing the child to enter another stage of life so it is required to be highly concentrated on its motivational, emotional and cognitive dimensions. It is clearly vivid that low motivation can engage the lack of attention to and concentration on learning and academic achievement and this has to be intensely taken into consideration in the children and adolescents with ADHD for which improvement through emotional intelligence training can be a solution of the choice. Moreover, the children's self-awareness and requirements can be identified via bringing about an increase in the emotional intelligence training so that they can be substantially assisted in gaining a clear insight of their goals and the way these can be accomplished. When such a sort of self-awareness comes about, children can take steps in line with sympathizing with the others and identify their emotions and feelings and take serious measures to dissolve their own as well as the others' problems.

The present study was conducted on only the adolescents in the city of Tabriz and thus care should be taken in generalizing the findings to the adolescents from the other cities. So, other studies covering wider environments on the adolescents with ADHD are suggested due to the abundant positive effects that the use of novel plans and approaches have in the field of education and upbringing on social-ethical behaviors and academic achievement. Also, the implementation of similar plans in several schools is recommended and if the results are found promising it can be extended to the entire schools around the country.

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