Studying the effect of behavioral education plan of parents and cognitive-behavioral education of children on improvement of social interaction in children affected by attention-deficit/hyperactivity disorder, between 8-12 years old in primary school

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Abstract

Introduction and background: Attention deficit / hyperactivity disorder is one of the most common childhood psychiatric disorder that affects on their educational and social functions. The Purpose of This study was evaluate and compare Effectiveness of Parents behavior training And cognitive - behavioral training children on improvement of social interaction students with attention deficit / hyperactivity between the ages 8 to 12 years old in Yazd city

Methods: This research is semi-experimental and the research design is pretest-posttest with control group. The research sample consisted of 47 subjects who were selected by available - sampling method. Parents behavior training contains 17 subjects, Group of cognitive behavioral training children contain 15 subjects and Group of control also contains of 15 subjects. Both Group attended in 8 sessions of one hour training which was conducted simultaneously. Research tools consisted of questionnaire(in the pre-test - post-test) Conner's parents and social skills that was completed by the parents of the participants. The data were analyzed at two levels of descriptive and inferential statistics.

Results: The research data indicated that Parents behavior training effected on improving social interactions of children with attention deficit / hyperactivity disorder from their parents point of view but cognitive - behavioral training that was absolutely concentrated on children did not effect on improving social interactions from their parents point of view.

Conclusion: With respect of the results of research based on Efficacy of behavioral parent training to the cognitive - behavioral training children on improvement of social interaction students with attention deficit / hyperactivity between the ages 8 to 12 years, it seems suggesting using this method to improve social interaction students with ADHD.

Keywords: social interaction students with ADHD, behavioral parent training, cognitive - behavioral training children.
In each interaction, the mutual action is accomplished at least between two persons. The purpose of social interaction is the response based on interpretation from others’ behavior which is as a motive for mutual reaction. These kinds of mutual reactions are predictable, repetitive and preceded on past models (Cohen, 2012). Different researches indicate the students whom are excommunicated by peers and don’t have proper social interaction, the probability of being affected by disorder (Northway and Wigdor, 1947), crime (Craft and Grygier, 1956), depression (Smith and Patterson, 1991) and educational problems is more in them (Salimi, 2009). Meantime, one of the most prevalent neural-growth disorders in childhood is the attention-deficit / hyperactivity disorder (Eme, 2016; Chuang and et al, 2015) which seems to be on the rise (Piepmeir and et al, 2015) and it has some stable specifications such as attention-deficit, hyperactivity and impulsivity (Bahmani and Alizadeh, 2011; Sha and Neha, 2014) that has influenced on cognitive functions (Ziereis and Jansen, 2015) and executive actions like arrangement and self-controlling skills of child and its result is constant conflicts in the familial and educational environment (Gapin and et al, 2015). This weakness is continued in social functions till maturity period (Miller and et al, 2012; Mautner and et al, 2015). Accomplished different researches confirm this issue that these children are facing with obstacles and problems in the field of social functions and interactions and social cognition which include emotional understanding of face, physical motions, the manner of speaking, reasoning, sympathy and understanding the joke (Tehrani Doost, 2010) and they always trouble their classmates and have problem in the field of social interactions with peers, family and teachers that these problems provide the field of seclusion in the children affected by attention deficit/hyperactivity disorder (Mikami, 2010; Ransone, 2009) and cause to increase the mental pressure in their parents (Kordestani, 2016; Sadeghi and et al, 2011). For reduction of the main symptoms of disorder and improvement of social functions of these children, there are two interventional-pharmaceutical (as the first line of treatment) and mental-social methods (Sadook and Sadook, 2003/2008) which emphasize on education of the parents and parenting skills and their purpose is to improve the social function and compatibility of these children (Conners and Juliet, 1996/2012; Buhrmester, 1992). The significant point is this issue that although pharmaceutical intervention is useful on improvement of social behaviors and familial relations of child but it will not be the certain treatment (Alizadeh, 2005). Therefore, applying the behavioral education methods like behavioral education of parents (Behiyat, 2011) and cognitive education seems necessary as the methods for improvement of individual and social functions of these children (Bikic and et al, 2015).

Some researches though dispersed have been accomplished in these educational fields. For example, Yazd Khasti (2012) in a research indicated that education of mental rehabilitation is effective on improvement of social interactions of students affected by attention-deficit/hyperactivity disorder. In another research, Tabaeyan and et al (2009) evaluate the effect of cognitive education based on social skills on social competence and function of children affected by attention-deficit/hyperactivity positively. Becker and et al (2012) believe that mental-social interventions (school-based) can be effective on social functions of these children. Zare Moghaddam (2008) in a research indicated that the behavioral-cognitive education is effective on social function (as one of the self-respect sub-scales) of children affected by attention-deficit/hyperactivity disorder. Hinsha (1984) knows that cognitive education of social self-evaluation is effective on social relations and interactions of children affected by attention-deficit/hyperactivity (Alizadeh, 2007). Begian and et al (2013) in a
research indicated that (cognitive) education of sympathy is effective on improvement of interactions and interpersonal relations of boy students in the first-to third grades of guidance school. The meta-analysis results of Dush and et al (1989) indicated that the cognitive-behavioral interventions have the more effect on children higher than eleven years old than little children (Mohammad Esmaeel, 2010). Some researches indicated that cognitive-behavioral interventions aren’t useful for attention-deficit/hyperactivity disorder. Kavale and et al (1996) in a meta-analysis indicated that (cognitive) education of social skills has little effect on students affected by learning disorder and it hasn’t any effect on the population affected by attention-deficit/hyperactivity disorder (Landau and Diener, 1998; quoted from Normand and et al, 2007). Mrug and et al (2012) believe that the consequences of therapeutic interventions based on improvement of relations with peers are weak in long-term. Another mental-social intervention which seems to be effective on improvement of social interactions and functions of these children is behavioral education of parents. Varnado and et al (2014) know the behavioral education as a serious non-pharmaceutical interventional method beside the pharmaceutical method for improvement of behaviors and interactions of these children in the school, social environments and house. They indicated that behavioral education of parents causes to improve the behaviors and interactions of children (6-12 years old) affected by attention-deficit/hyperactivity disorder in the house, school and society environments. Some researches accomplished in Iran indicate that education of parents and parental skills of children affected by attention-deficit/hyperactivity disorder has desired effect on improvement of relation of parent-child in the family environment (Sadeghi and et al, 2011; Abedi and et al, 2012; Nejati and et al, 2016). A meta-analysis of 63 studies by Landal and et al (2006) was done for evaluating the validity of parents education plans for behavioral changes of children affected by attention-deficit/hyperactivity. They announced the coefficient of non-behavioral interventions effect in the pursuit stage as a serious obstacle due to the lack of enough studies and they reported the plans related to the parents education and behavioral interventions with low effect coefficient. In another research, Nooshafarin and et al (2015) indicated that correction of parent-child interaction isn’t effective on increase of social skills of pre-school children affected by attention-deficit/hyperactivity disorder.

With regard to the contradict reports which were expressed about the effects of cognitive-behavioral education and behavioral education of parents on improvement of interactions and interpersonal relations and on the other hand, prevalence and undesired effects of this disorder on social functions of children, in this research, it is attempted that the effect of plan related to the behavioral education of parents and cognitive-behavioral education of child on improvement of social interactions of children affected by attention-deficit/hyperactivity to be studied in children who are 8-12 years old in primary school.

**Method:** This research is semi-experimental and the research design is multi-group pretest-posttest with control group. The population under study included all girl and boy students (8-12 years old) whom were referred to the consultation clinic of Imam Hossein (peace be upon him) in Yazd Township. The research sample included 47 triable persons that were selected by convenience sampling method. It included 19 persons in the second educational grade, 13 persons in third educational grade, 8 persons in fourth grade and 7 persons in fifth grade. The mean and variable deviation of age in all groups were in order 9.40 and 1.18. 12 girls and 35
boys attended in these three groups. In this form that the students that through interview with parents, Conners' parents test and psychotherapists view had the main symptoms of this disorder, took part in this research with family satisfaction. The parents of experimental groups in two stages of pre and post-intervention and parents of control group in two stages of pre and post-test responded to the questions of social interactions questionnaire. For forming the experimental and witness groups, also controlling the variables that we predicted that has influenced on post-test results and defaces the effectiveness of experimental applications, the method of assorting the groups was used with regard to the means of dependent variable pre-test of symptoms related to the attention-deficit/hyperactivity disorder, intelligence, parents literacy and educational grade (the difference of assorted groups wasn’t meaningful statistically). Therefore, in the behavioral education group of parents, cognitive-behavioral experimental group of children and control group, in order 17, 15 and 15 persons were replaced. The behavioral education of parents was accomplished in 8 sessions (each session 90 minutes) during eight weeks (February and March, 2015).

<table>
<thead>
<tr>
<th>sessions</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>First session</td>
<td>Introduction of educator and education of symptoms related to the attention-deficit/hyperactivity disorder</td>
</tr>
<tr>
<td>Second session</td>
<td>Free discussion about parents' view about the causes of children's misbehavior (A-Psychological features of child, B-Parents' features, C-Familial stressful events, D-Situational consequences)</td>
</tr>
<tr>
<td>Third session</td>
<td>The methods of creating new desired behaviors (the observatory model method in accordance with Bandura's theory, making chains in accordance with conditioning the actor and giving evidence to the desired behavior)</td>
</tr>
<tr>
<td>Fourth session</td>
<td>The methods of protecting the existing desired behaviors by parents (encouragers presentation model) and parents' familiarity with the manner of applying the fortifiers continuously and non-continuously proportional with the number in different times</td>
</tr>
<tr>
<td>Fifth session</td>
<td>Attention to the desired behaviors and the methods of increasing the existing desired behaviors by using of the positive fortification method (applying the Premack principle and using of activity fortifiers in the frame of concentrative and emotional games) and negative fortification for increasing the desired behavior in child</td>
</tr>
<tr>
<td>Sixth session</td>
<td>Educating the methods of elimination and reduction of undesired behaviors that in this session, they were about: A-Positive methods of reducing the behavior (1-Denotative fortification of behaviors with low rate and other behaviors, 2-Denotative fortification of incompatible behaviors, 3-Saturation)</td>
</tr>
<tr>
<td>Seventh session</td>
<td>Educating the negative methods for reduction of behavior (1-Silence, 2-Deprivation from fortification, 3-Penalties, 4-Compensation, 5-Punishment)</td>
</tr>
<tr>
<td>Eighth session</td>
<td>Using of daily report card and recommendations for parents (using of daily report card of behavior in the school, providing the list of behavioral consequences, table of self-controlling behavior (educational and behavioral) and recommendations to the parents about the methods of proper interaction with this kind of children in the communicative and</td>
</tr>
</tbody>
</table>
Cognitive-behavioral education of children was accomplished in this form that in the first session with presence of parents, the purposes of formation of sessions and concordance about scheduling and necessity of performing the educational exercises by children were expressed. These educational sessions were also accomplished simultaneous with the behavioral experimental group and they were done in the form of one session in a week, totally 8 weeks. In these sessions, the summary of issues was recorded by students and in some cases educators in their notebook at the end of each session. And the students were requested to do the educational exercises in the house. Also in the beginning of each educational session, the summary of former session was expressed for students briefly. The expressed educational content was also as follows:

<table>
<thead>
<tr>
<th>Sessions</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>First session</td>
<td>Students familiarity with the symptoms of this disorder in a simple word and recommendations about controlling the sleep, food and other conditions.</td>
</tr>
<tr>
<td>Second session</td>
<td>The students were familiarized with the relations among thoughts, feelings and behaviors and other fundamental thoughts which can influence on other thoughts, feelings and behaviors (according to the Ellis and Beck's theory)</td>
</tr>
<tr>
<td>Third session</td>
<td>The student should be able to identify his/her negative thoughts (he/she should be familiarized with the thought tracer concept) and he/she was familiarized with the most common thought errors.</td>
</tr>
<tr>
<td>Fourth session</td>
<td>The student should be familiarized with the thoughts controlling concept, he/she was familiarized with the concepts of positive self-educating and collative self-talk (according to the Mikenbam's theory)</td>
</tr>
<tr>
<td>Fifth session</td>
<td>Cognition of feelings and emotions (the student is familiarized with the concept of stress, anger and anxiety and he/she should identify the cases which cause to create them in himself/herself)</td>
</tr>
<tr>
<td>Sixth session</td>
<td>The methods of controlling the emotions and regulating them with different situations (the student is familiarized with the concept of muscular rest and sport exercises which cause to reduce the undesired feelings and emotions and he/she should understand the importance of selecting proper words for transferring his/her thoughts and feelings in inter-personal relations).</td>
</tr>
<tr>
<td>Seventh session</td>
<td>Learning the problem solving method (the student is familiarized with this concept that before each decision to stand, think and then decide and study the positive and negative points in each decision)</td>
</tr>
<tr>
<td>Eighth session</td>
<td>Education of schooling skills (the student was familiarized with some of study skills, internal deeds and a self-controlling table)</td>
</tr>
</tbody>
</table>

In these sessions, the summary of expressed issues was recorded by students and in some cases educator in their notebooks and the students were requested to do the educational exercises in the house.
exercises in the house. Also in the beginning of each education session, the summary of former session was expressed very briefly.

The research tools: Conner’s parents test which includes 27-question short form, was completed by the mothers of triable persons. The score of triable person in each question is between zero to three that the total of triable scores is divided by the number of questions (27). The cut-off point of test for cognition of this disorder is 1.5. The age range used in the Conner’s scales is between three to seventeen years old. The internal reliability coefficients have been reported with a domain of 75 to 90% and the reliability coefficient of re-testing with time span of 8 weeks has been reported 60 to 90% (Zargarnezhad, 2007). This questionnaire has the face and content validity (Shefat and Tiri, 2012).

Social interactions questionnaire: For measuring the social interaction, social skills questionnaire (parents’ form) was used. For obtaining the scores, the test key should be used; score 1 belongs to the responses conformed to the key. The least test score is zero and the highest score is 75. This test includes subscale of social incompetence (30 phrases) that the scores domain is between 0 to 30 and also subscale of social skills (30 phrases) that the scores domain is between 0 to 30 and finally subscale of communicating with peers that includes 15 phrases and the scores domain is between 0 to 15. The scores of sub-groups are summed with each other and the total score is accounted as the social interaction variable that lower scales indicate higher social interactions and vice versa high scores indicate the weakness of triable in this case (Yazd Khasti and et al, 2012). The validity coefficients of this test through Cronbach’s Alpha method for subscales of social skills, social competence, communicating with peers and total validity of test were in order 0.87, 0.83, 0.78 and 0.92 (Yazd Khasti and et al, 2012). The result of validity coefficient through the halving method is 0.96 (Yazd Khasti and et al, 2012). This questionnaire has the face and content validity (Kargar, 2014, Yazd Khasti and et al, 2012).

Findings: The data were analyzed in two levels of descriptive (frequency and mean) and inferential statistics including Kolmogorov-Smirnov test for normality of the scores distribution, Leven test for equality of variances and ANOVA.

The demographics specifications of triable persons included 19 persons in the second educational grade, 13 persons in third grade, 8 persons in fourth grade and 7 persons in fifth grade. 12 girls and 35 boys attended in these three groups. Also the inferential findings of the research were as follow:

- Behavioral education of parents is effective on improvement of social interactions of students affected by attention-deficit/hyperactivity disorder (sub-groups which are mainly inattentive, impulsive and combinative).

For testing this hypothesis, ANOVA method was used. At first, the necessary presumptions for ANOVA namely the hypotheses for conforming the scores with the normal curve and the variance equality hypothesis of the control groups with experimental group and also the hypothesis of regression slope homogeneity in this variable were studied. Since there were the necessary conditions for performing the ANOVA, this method was used for testing this hypothesis.

Descriptive comparison of the means in witness groups with experimental groups in the covariate and dependent variables:
Table No.1: The mean and standard deviation of the anesthetic, pre and post-test variables of social interactions separately according to the group variable (witness group with experimental group of behavioral education)

<table>
<thead>
<tr>
<th>Group</th>
<th>Indexes</th>
<th>Anesthetic</th>
<th>Pretest of behavioral education</th>
<th>Posttest of behavioral education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Witness group</td>
<td>Mean</td>
<td>96.47</td>
<td>37.27</td>
<td>36.6</td>
</tr>
<tr>
<td></td>
<td>Standard deviation</td>
<td>14.71</td>
<td>10.443</td>
<td>10.729</td>
</tr>
<tr>
<td>Experimental group of behavioral education</td>
<td>Mean</td>
<td>99.47</td>
<td>36.65</td>
<td>32.18</td>
</tr>
<tr>
<td></td>
<td>Standard deviation</td>
<td>14.16</td>
<td>11.357</td>
<td>10.327</td>
</tr>
</tbody>
</table>

The above table indicates the mean and standard deviation of anesthetic, pre and post-test variables of social interactions separately according to the group variable (witness group with experimental group of behavioral education of parents). According to this, it can be said that descriptively the means of triable ones in both groups don’t have significant difference with each other. But the difference of means in both groups in posttest is relatively significant.

Table No.2: ANOVA of posttest scores of social interactions variable as a function of group variable with covariate scores of this variable pretest and also anesthetic covariate scores

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of squares</th>
<th>Freedom degree</th>
<th>Mean of squares</th>
<th>F</th>
<th>Meaningfulness level</th>
<th>The amount of effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest (covariate)</td>
<td>1704.03</td>
<td>1</td>
<td>1704.03</td>
<td>67.48</td>
<td>0.000</td>
<td>0.707</td>
</tr>
<tr>
<td>Anesthetic (covariate)</td>
<td>32.84</td>
<td>1</td>
<td>32.84</td>
<td>1.30</td>
<td>0.264</td>
<td>0.044</td>
</tr>
<tr>
<td>Group (control-experimental)</td>
<td>106.69</td>
<td>1</td>
<td>106.69</td>
<td>4.23</td>
<td>0.049</td>
<td>0.131</td>
</tr>
<tr>
<td>Error</td>
<td>707.05</td>
<td>28</td>
<td>25.25</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As it has been mentioned in above table, the meaningfulness level of the effect of pretest covariate variable on dependent variable (posttest) is less than 0.05 and therefore, it is meaningful. But the meaningfulness level of the effect of anesthetic covariate variable on dependent variable (posttest) is more than 0.05 and therefore, it isn’t meaningful. And also the meaningfulness level of the independent variable effect (group) on dependent variable (posttest) is less than 0.05 and therefore, it is meaningful. Namely in this analysis, in fact the anesthetic variable isn’t intervener variable and it doesn’t meaningful effect on posttest results, but pretest scores have influenced on posttest scores and in this analysis after elimination of pretest effect, the experimental variable effect is still meaningful and the amount of its effect is 13.1 percent.

This result indicates that in this ANOVA, after elimination of the covariant variables effect, the group variable effect is still meaningful. Namely the experimental conditions (behavioral education of parents) have caused to improve the social interactions of triable ones.
The cognitive-behavioral education is effective on improvement of social interactions of students affected by attention-deficit/hyperactivity disorder (sub-groups which are mainly inattentive, impulsive and combinative).

For testing this hypothesis, the ANOVA method was used. At first, the necessary presumptions for ANOVA namely the hypotheses of conforming the scores with normal curve and variance equality hypothesis of the scores in control groups with experimental group and also the hypothesis of regression slope homogeneity in this variable were studied. Since there were the necessary conditions for performing the ANOVA, this method was used for testing this hypothesis.

Descriptive comparison of the means in the witness groups with experimental group in the covariate and dependent variables:

**Table No.3: The mean and standard deviation of anesthetic, pretest and posttest variables of social interactions separately according to the group variable (witness group with experimental group of cognitive-behavioral education)**

<table>
<thead>
<tr>
<th>Group</th>
<th>Indexes</th>
<th>Anesthetic</th>
<th>Pretest of social interactions</th>
<th>Posttest of social interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Witness group</td>
<td>Mean</td>
<td>96.47</td>
<td>36.60</td>
<td>36.60</td>
</tr>
<tr>
<td></td>
<td>Standard deviation</td>
<td>14.71</td>
<td>9.66</td>
<td>10.73</td>
</tr>
<tr>
<td>Experimental group of cognitive-behavioral education</td>
<td>Mean</td>
<td>101.20</td>
<td>36.73</td>
<td>36.20</td>
</tr>
<tr>
<td></td>
<td>Standard deviation</td>
<td>12.76</td>
<td>12.71</td>
<td>13.76</td>
</tr>
</tbody>
</table>

The above table indicates the mean and standard deviation of anesthetic, pretest and posttest variables of social interactions separately according to the group variable (witness group with experimental groups of cognitive-behavioral education). According to this, it can be said that descriptively the means of triable persons in both groups in these three tests don’t have significant difference with each other.

**Table No.4: The ANOVA of posttest scores of social interactions variable as a function of group variable with the scores of pretest covariant of this variable and anesthetic covariant scores**

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of squares</th>
<th>Freedom degree</th>
<th>Mean of squares</th>
<th>F</th>
<th>Meaningfulness level</th>
<th>The amount of effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest (covariant)</td>
<td>1617.99</td>
<td>1</td>
<td>1617.99</td>
<td>45.58</td>
<td>0.000</td>
<td>0.637</td>
</tr>
<tr>
<td>Anesthetic (covariant)</td>
<td>43.47</td>
<td>1</td>
<td>43.47</td>
<td>1.22</td>
<td>0.279</td>
<td>0.045</td>
</tr>
<tr>
<td>Group (control-experimental)</td>
<td>0.01</td>
<td>1</td>
<td>0.01</td>
<td>0.00</td>
<td>0.987</td>
<td>0.000</td>
</tr>
<tr>
<td>Error</td>
<td>923</td>
<td>26</td>
<td>35.50</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The above table indicates the ANOVA results of posttest scores of social interactions variable as a function of group variable with the covariant scores of this variable pretest and also anesthetic covariant scores.
This result indicates that in this ANOVA, after elimination of the covariant variables effect, the effect of the group variable isn’t meaningful anymore. Namely the posttest means of triable persons in control and experimental groups in social interactions variable don’t have meaningful difference with each other and in fact the experimental conditions (cognitive-behavioral education of parents) haven’t caused to improve the social interactions of triable persons.

**Discussion and conclusion**

This research studied the effect of the plan related to the behavioral education of parents and cognitive-behavioral education on improvement of social interactions of children (8-12 years old) affected by attention-deficit/hyperactivity disorder with the age average of 9.40 in triable persons (experimental-behavioral group of parents). The results indicate that the plan of behavioral education of parents is effective on improvement of social interactions of children affected by attention-deficit/hyperactivity disorder. This result conforms to the research of Sadeghi and et al (2011), Abedi and et al (2012), Nejati and et al (2016) and Varnado and et al (2014) and it doesn’t conform to the research of Nooshafarin and et al (2015). In explaining this hypothesis, it can be said: education of parents has provided a capacity for changing their approach and attitude and the parents are familiarized with the manner of using of their model role and they acquire the necessary skills for creating, changing, adjusting and continuing the desired behaviors and eliminating the undesired behaviors in their children. As Varnado and et al (2014) in their research indicated that behavioral education of parents provides a real empirical environment and a parental capacity for improvement of proper behavioral consequences for these children in the house, school and social environment, on the other hand, this kind of parents due to have child affected by attention-deficit/hyperactivity disorder feel more mental pressure than parents of normal children and presenting the behavioral education to the parents about constructive interactions with this kind of children can create a constructive opportunity for reduction of mental pressure in them (Rosshabin and et al, 2007; Chronis and et al, 2004; Danforth and et al, 2006). Because it seems that mental pressure acts as a mediator variable between education of parents and improvement of social interactions of these children. In this manner that the mental pressure of these children's parents underlies the non-constructive interactions of parent-child and this negative behavior fortifies the stress and neural pressures of parents. The important and significant point is this issue that this defective relation formed between child and parent merely isn’t finished to the relation of one of the parents and children, rather it influences on the intra-systemic relations of family and has caused to form defective coalitions in the family structure and increases the educational disharmony between the parents. The result of unhealthy relations and disharmonies formed in the family system can influence on the (concept of self) and self-respect of these children (Houck and et al, 2011) and it can be effective on all functions of these children in different domains of social interactions such as communicating with parent and other family members, communicating with peers and relation with their educational environment. Therefore, it can be claimed that education of parents in fact finishes this defective communicative cycle formed in the family structure or at least reduces its bad effects. Another point which can be expressed for explaining the result of this hypothesis is this issue that education of parents leads to reduce their stress and the resultants of education of parents and reduction of parental stress lead to adjust the level of parents’ expectations and instead of it that parents to introduce each other as the responsible of such a situation or merely know their child as a disobedient, obstinate and refractory person, introduce the educational methods and training ways and this kind of
their non-constructive interactions as the responsible of happened situation and they make more effort for changing the existing situation. What can be supplied as the result of these issues is in this form that education of parents about the nature and procedure of this disorder and informing and equipping the parents with management and art of creating the effective behavioral consequences for this kind of children in addition to create more realistic and just understanding in them (parents), can be also effective on the attitude and manner of completing the questionnaires in the posttest stage. Therefore, the researchers who are interested in investigative works in this field are suggested to do different investigative works in relation with the effect of behavioral education of parents or reduction of expectations level and stress and change of parental attitudes to these children so that more precise explanation to be presented about the manner of behavioral education effectiveness of parents directly or indirectly on the variable of social interactions improvement of these children. Of course, mention of this issue is also important that the plans of behavioral education of parents gregariously and behavioral interactions for deprived families are very useful (Landal and et al, 2006).

Finally, it can be said that as Barkley (2002) believes, it seems among non-pharmaceutical treatments, education of parents about the manner of behavioral management of this kind of children is more effective than other educations (Barkley, 2002). From other results of this research, it can be said that cognitive-behavioral education of children affected by attention-deficit/hyperactivity disorder lonely isn’t effective on the improvement of their social interactions. The result of this investigative hypothesis conforms to the researches results of Gittleman (1985), Dupaul and Eckert (1997), Shapiro and et al (1998), Landal and et al (2006) and somehow it conforms to the meta-analysis results of Dush and et al (1989) and Begian and et al (2013) that indicated the cognitive-behavioral interventions have the most effect on the children affected by attention-deficit/hyperactivity disorder higher than eleven years old. Because the age average in the interventional cognitive-behavioral group in this research was 9.33. Also it conforms to the research result of Safren and et al (2005) who know the cognitive-behavioral interventions are only effective on combination with pharmaceutical method (Ramsay and Rostain, 2008/2011) and Vandar (1995/2013) and Ramsay and Rostain (2005/2011) that evaluated the cognitive-behavioral education can be useful only for adolescents and adults affected by attention-deficit/hyperactivity and it doesn’t conform to the researches results of Tabaieyan and et al (2009), Becker and et al (2012), Zare Moghaddam (2008), Hinsha (1984) and somehow the research of Yazd Khasti and et al (2012). In explaining this hypothesis, it can be said: the age limitation (9.33) of triable persons in the cognitive-behavioral experimental group can be proposed as the probable cause of obtained result, because these children with regard to the limited cognitive and environmental experiences don’t have the ability to change their behavior tangibly from parents’ view. Because data analysis in posttest indicated this issue that the students that were in the higher educational grades (fourth and fifth) had better interaction in posttest from parents’ view. Another significant point which can be considered in this field is this issue that the parents of these children due to have vaster environmental experiences, have better ability in behavioral management of these children. Therefore, the parents of children affected by attention-deficit/hyperactivity disorder with behavioral education method in comparison with the method of cognitive-behavioral education inclined to these children for self-management indicate more useful behavior from themselves. With regard to what was said, the researchers who have tendency to do the investigative works related to this issue are suggested to consider their cognitive education with regard to other effective factors on improvement of social interactions of this kind of children such as education of parents, children, peers and
teachers. Because beside regard to the familial environment of this kind of students, considering other educational factors in the school environment like selection of educated peers that can have proper model behaviors in the real empirical environment of this kind of students is significant. As Becker and et al (2013) believe, the school-based social-mental interventions and the interventions based on reduction of unhealthy relations between the peers of children affected by attention-deficit/hyperactivity disorder in the school environment can be effective on their social function in future. This is a point that Hoza and et al (2003) also suggest that for improvement of inter-personal relations with peers preferably the interventions should be formed with the purpose of mutual friendship (between the child affected by this disorder and another child), because this method forms more realistic strategy for improvement of communications and interactions with peers. Of course, this issue must be mentioned that although the results of some researches have reported that the consequences of therapeutic interventions based on improvement of relations with peers are weak in long-term, but if the necessary educational interventions aren’t accomplished for improvement of these children’s interactions with their peers, the problems arising from inter-personal communications of these children with peers in the school can be considered as the important predictor factor of their behavioral problems in future (Mrug and et al, 2012).

From another angle, the result of this investigative hypothesis can be explained in this manner that the cognitive-behavioral education accomplished in the research was limited to the education of children. Therefore, no meaningful changes were happened in the social interactions of these children from their parents’ view. Now, if we know the deficiency in the social functions of these children arising from prefrontal cortex of the brain (Tehrani Doost, 2010) and generally if we know the social behavior of these children as the product of interaction between the nature and training factors (environmental learnings), so for changing the social behaviors of these children, preferably beside the pharmaceutical interventions for providing their biological readiness and more environmental learnings, we should use of comprehensive cognitive-behavioral interactions which are inclined to the child, parents, peers and teacher so that we can have the expectation of more changes in social functions of this kind of children. Although as Hoza and et al (2003) believe, no effective interventional method can destruct improper social functions of these children completely.
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