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The effectiveness of cognitive-behavioral therapy program especially for adolescents with attention deficit / hyperactivity disorder with them with teachers

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Abstract

Introduction: Research has shown that the behavior of people with ADHD affects their performance in the family، school and community and provokes a negative reaction from those around them. Therefore، the aim of this study was to evaluate the effectiveness of cognitive-behavioral therapy program for adolescents with attention deficit disorder. The hype was about their interaction with teachers.

Method: The method of quasi-experimental research and pre-test and post-test research design was follow-up with control and experimental groups. The statistical population included all adolescents aged 18-12 years who were diagnosed with ADHD in 1998 and were referred to the Resuscitation Clinic. For screening test (CBCL) was performed on the referred individuals and 30 people who scored higher than the cut in the test were selected. The research instruments included a child behavior checklist and a teacher-student relationship quality questionnaire IT-SR.

Results: The research findings were analyzed using SPSS software version 24 and analysis of covariance at a significance level of 0.05. Results: The findings showed that the cognitive-behavioral therapy program for adolescents with ADHD had a significant effect on their interaction with teachers.

Conclusion: According to the research findings، it can be said that the cognitive-behavioral program for adolescents has a beneficial effect on their interaction with teachers.

Keywords: Adolescents" Cognitive Behavioral Therapy" Hyperactivity" Interaction" Teachers

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Introduction:

Attention Deficit / Hyperactivity Disorder (ADHD) is one of the most commonly diagnosed childhood disorders، estimated at 5 to 10 percent in children in Canada and internationally. Attention Deficit Hyperactivity Disorder (ADHD) continues to be the current diagnostic tag for children and adults، with significant attention problems and usually with excessive shaking and activity. Children and adults with ADHD show a relatively heterogeneous population that shows significant changes in symptom rate، age of onset، situational learning of those symptoms، and other disorders associated with ADHD. This problem is one of the most common referrals to children with behavioral problems with medical and mental health physicians in the United States and is one of the most common child psychiatric problems. Adult referrals for ADHD are also on the rise. Until the 190s and even today، this age group has been significantly less well known (1). The main distinctions of this disorder are identified in the design of executive functions، which include cognitive infrastructure processes that control movement، planning، organization، and control. The early conceptualization of ADHD was based on inattention، impulsive behavior، and overactivity، as well as defective moral control of behavior. Proponents of her case have been working to make the actual transcript of this statement available online. Subsequent comments on the association of ADHD with brain injury، especially the frontal lobes، sit on the brain and then look at brain function، then become more active. There are current views on the causes of hyperactivity over the subjective nature of neural development and the prominent roles played by genetics as well as non-genetic neurological factors (1).

In Iran، several studies have been conducted by psychologists and psychiatrists to determine the prevalence of this disorder. The average prevalence rate of attention deficit hyperactivity disorder based on data obtained in Iran is 8.72%. Among the studies conducted in Iran، six studies had the prevalence rate of this disorder in three subgroups of attention deficit، hyperactivity-impulsivity and combination، with an average prevalence rate of attention deficit disorder of 5.2%، hyperactivity-impulsivity 4.81% and combination type 18 / 3% is obtained. The prevalence rate in Ilam، Shiraz، Sirjan and Birjand cities was lower than the national average and the prevalence rate in Tehran، Mashhad، Neishabour، Roodehen and Yazd was higher than the average (2). There are many interventions for the treatment of ADHD، and in this study، more emphasis is placed on psychological interventions. Cognitive-behavioral therapy (CBT) is a group of interventions that the main premise of maintaining mental disorders and mental disorders are cognitive factors. The main premise of this therapeutic approach، advocated by Beck (1970) and Alice (1962)، is that maladaptive cognitions help maintain emotional distress and behavioral problems. According to Beck، these maladaptive cognitions include general beliefs or schemas about the world، self، and future that give rise to particular and automatic thoughts، especially in specific situations. The basic model is that therapeutic strategies to change these maladaptive cognitions lead to a change in emotional distress and problematic behaviors. According to psychiatric medication patterns، the overall goal of treatment is to reduce symptoms، improve function، and improve illness. To achieve this goal، the patient engages an active member in a problem-solving process to test and challenge the validity of maladaptive cognitions and to correct maladaptive behavioral patterns؛ Thus،

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modern CBT refers to a family of interventions that combine cognitive، behavioral، and emotion-based techniques (3). Extensive research on the effectiveness of cognitive-behavioral therapy in drug-treated adolescents (4)، cognitive-behavioral therapy versus relaxation with educational support for ADHD-treated adults with persistent symptoms (5) Integrated cognitive-behavioral therapy for ADHD in adult patients with substance use disorder (6)، Cognitive-behavioral therapy for adult ADHD with psychological and medical approach (7).

Students with ADHD face more learning challenges than any other group of students. These individuals may experience psychological trauma that affects the effectiveness of college curriculum structure and learning outcomes (8). There are several treatment options available for children with ADHD، including medication and behavioral therapy. Although researchers have examined the effectiveness of these approaches، they can influence students 'behavioral and learning outcomes about how teachers' factors، including attitudes and beliefs about ADHD and treatment options، affect them (9). Although the evidence for ADHD is limited and some findings may be difficult to interpret، the positive role of psychological education and other educational interventions in children and adolescents with ADHD has been supported by many measures (9). A review study by Montoya et al. (2011) on hyperactive children (three studies)، children / adolescents and their families (three studies) or their teachers (one study) showed that positive results were seen as an improvement in A number of different variables were obtained، including patient behavior، parent-child satisfaction، the child's knowledge of ADHD، children's views on medication use، and adherence to medical advice (9). According to the above، the development of a special cognitive behavioral program does not have the side effects of medication and covers all of the above، such as peers، etc. Therefore، the development of a special cognitive behavioral program is of particular importance and necessity. Cognitive-behavioral therapy program for adolescents with ADHD to focus on their interaction with teachers.

The results of Feyzollahi's research (10) entitled the effect of play-cognitive-behavioral therapy and its combination with parental management training on ADHD symptoms in hyperactive children aged 7-11 years showed that after the interventions، between the mean scores of ADHD symptoms in ADHD There was a significant difference between the experimental group and the control group as well as the experimental group and the control group. Also، there was a significant difference between the effect of play، cognitive-behavioral therapy and combination of play، cognitive-behavioral therapy and parental management training. Compared to the mean of the two approaches، the combined intervention was more effective.

The results of Hamidi and Mohammadi (11) entitled the effectiveness of cognitive-behavioral group counseling of parents of hyperactive children on children's behavioral disorders showed that there is a significant difference between the experimental group and the control after the experimental intervention in the hyperactivity variable and its components. Therefore، if parents have sufficient skills in using the attitudes of this method، they will have less problems in different life situations، especially in relation to their hyperactive children، and consequently، the level of mental health of family members will increase.

The results of Zabihollahzadeh et al. (12) entitled the effectiveness of cognitive-behavioral therapy

based on parent-minded mind on resilience and emotional self-regulation of adolescents with ADHD showed that parent-centered cognitive-behavioral therapy based on resilience-minded parenting and emotional self-regulation Having a hyperactive disorder has a significant effect.
The results of the study by Spritch et al. (4) as a randomized controlled trial of cognitive-behavioral therapy for ADHD in drug-treated adolescents showed that this study shows the initial effect of CBT in adolescents with ADHD who، despite taking medication، have persistent symptoms. They show.
The results of Quillho et al. 's (13) study on group cognitive behavioral therapy in children and adolescents with ADHD showed that there was no difference between the CBT group and CBT and drug therapy in cognitive and behavioral outcome measures. In social skills، multi modeling showed more progress in many indicators in the subscales of empathy، assertiveness and self-control، and under the subscales of assertiveness and self-control. Using group CBT protocol to treat multimodal ADHD may improve patient adherence and environmental symptoms of ADHD.

Research Methods:

The present research method is quasi-experimental and is considered in terms of practical purpose. The research design is pre-test post-test with the control group and the second post-test was performed to assess the degree of stabilization of the results of the interventions two months after the first post-test. In this study، before and after the application of the independent variable (cognitive-behavioral therapy program for adolescents), dependent variables (disorder and interaction) were measured in participants. The statistical population included all adolescents aged 18-12 years who were diagnosed with ADHD in 1998 and were referred to the Resuscitation Clinic. The statistical sample consisted of 30 people who received a higher score than the cut in the CBCL test، which was randomly divided into 2 groups of 15 people. N). The sampling method was available and based on inclusion and exclusion criteria، which were initially interviewed by a senior clinical psychologist to confirm ADHD. Subjects were selected by first examining adolescents aged 12-18 years who had been diagnosed with ADHD in 1998 and referred back to the Respiratory Clinic for CBCL، and 30 individuals who scored higher than the incision test. Were selected and then interviewed clinically by a senior clinical psychologist to confirm ADHD. Apart from the interview، the subjects were selected by making a questionnaire (researcher-made) containing information about the name، age، medical history and type of drugs or psychiatric drugs، and were provided to the subjects to complete. 15 people were selected as the experimental group and 15 people as the control group by simple random sampling. In the final stage of research sampling، 2 members of the control group due to not attending the post-test and follow-up were removed and the final sample of this group remained 13 people. Also، in the experimental group، 1 person was removed due to absence in the cognitive-behavioral therapy program and the final sample of this group remained 11 people. Finally، a total of 27 experimental and control groups were selected as the final sample of the research based on inclusion and exclusion criteria. . Child Behavior Inventory Questionnaire and Adolescent Self-Assessment Form (YSR) were provided to the subjects. The intervention consisted of 12 sessions of individual cognitive-behavioral therapy

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treatment plan and was presented in 45-minute sessions. Due to the limitations caused by the coronavirus epidemic، the sessions were performed in groups. In this study، which consists of two groups of subjects، both groups are measured three times؛ They were evaluated once in the pre-test، ie before applying the independent variable، and once in the post-test، ie after applying the independent variable، and a companion three months after the end of the research for follow-up. In this study، descriptive statistics were used to determine the mean، median، standard deviation، drawing tables and graphs. Prior to testing and statistical analysis، the normality of the distribution of dependent variables was checked by Shapir-Wilek test. Then، for statistical analysis and testing of quantitative and normal hypotheses، ANOVA analysis of variance and independent t-test and repeated measures were used، because the best statistical method to evaluate the survival and durability of the test is in the context of repeated measures analysis of variance. All calculations were performed using SPSS software version 24. In this study، the null hypothesis with a probability of $P \leq 0.05$ error was considered. Inclusion criteria**:** Age range 12 to 18 years, Gender boy, do not take any stimulant or non-stimulant pills for the disorder, Not having any other comorbid disorders. Exclusion criteria**:** Having a history of mental illness and hospitalization in psychiatry, using another treatment method other than research interventions, Absence of more than one session from attending research intervention sessions, Reluctance to cooperate with the researcher

Table 1 - Summary of intervention sessions

Content	aim	Meeting
Introduction and introduction of the group؛ Introduce ADHD and state goals، explain group rules، discuss the consequences of the disorder	Introduction	1
Provide external and internal solutions to improve attention and memory skills	Attention deficits and memory problems	2
Discuss time wasting traps and explain the six essential steps to managing time	Time Management	3
Explain the five steps of problem solving	Problem solving skills	4
Introduce cognitive and behavioral impulsivity and explain coping strategies.	Impulsivity and hyperactivity	5
Explain distraction techniques to deal with restlessness	Impulsivity and hyperactivity	6
Explain good speaking and listening skills and practice using role-playing techniques، recognizing emotions	social skills	7
Explain non-verbal communication skills (eye contact, physical closeness and body movements) ; Techniques for rejecting irrational requests.	social skills	8

Introduce self-talk techniques, distraction، muscle relaxation and position reconstruction to manage anger.	Anger management	9
Challenging the mistakes of negative thoughts and thoughts	Depression and low mood	10
Provide behavioral strategies to address sleep problems	Sleep problems	11
Summarize and adjust the reward system to achieve goals	Prevention of recurrence	12

Child Behavior Inventory (6 to 18 years old)

The Child Behavior Inventory is part of the ASEBA Aachenbach Parallel Forms and assesses the problems of children and adolescents in eight factors: anxiety / depression، isolation / depression، physical complaints، social problems، thinking problems، attention problems، ignoring rules، and aggressive behavior. Ignoring the rules and aggressive behavior are the second factor in externalizing problems. This questionnaire assesses emotional-behavioral problems as well as academic and social abilities and competencies of children aged 6-18 years from the perspective of parents and is typically completed in 20 to 25 minutes (14). This questionnaire consists of 113 questions related to different types of children's behavioral situations. The answers to the questions of this questionnaire in the form of Likert are 3 options from 0 to 2. Thus، a score of "0" is given to items that never exist in the child's behavior؛ A score of "1" is given to the situations and behaviors that are sometimes observed in the child، and a score of "2" is given to the cases that are most often or always present in the child's behavior.

This form measures 8 emotional-behavioral problems or syndromes، which are:

1- Anxiety / Depression (AD) (including Articles 12،14،29،30،31،32،33،35،45،50،52،71،91 and 112)

2. Isolation / Depression (WD) (including Articles 5،42،65،69،75،102،103، and 111)

3- Physical complaints (SC) (including articles 47،49،51،54، a56، b56، c56، d56، e56، f56، g56 and if possible h56)

4- Social problems (SP) (including articles 11،12،25،27،34،36،38،48،62،64 and 79)

5- Thinking Problems (TP) (including Articles 9،18،40،46،58،59،60،66،70،76،80،83،84،85،92 and 10)

6- Attention problems (related to Attention Deficit / Hyperactivity Disorder) (AP) (including Articles 1،4،8،10،13،17،41،61،78 and 80)

7- Violation Behavior (RB) (including Articles 2،26،28،39،43،63،67،72،73،81،82،90،96،99،101،105 and 106)

Aggressive Behavior (AG) (including Articles 3،16،19،20،21،22،23،27،37،57،68،86،87،88،89،94،95،97 and 104).

In addition to the above method، CBCL has three broadband scores including 1- internalized

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behavioral problems، 2- externalized problems and 3- general problems.
The Internalized Behavioral Problems Scale includes the items subscales of withdrawal / depression (WD)، physical complaints (SC)، and the Anxiety / Depression Scale (AD).
The scale of externalized behavioral problems includes the subscales of offensive behavior (RB) and aggressive behavior (AG).
The scale of general problems includes all items except items 2 and 4 (allergy and asthma).
Regarding the interpretation of test scores as acknowledged by Akhenbach (1991) in internalized and externalized behavioral problem scales and general problems if the individual's T score is less than 60 in the normal or non-clinical range and if the T score is between 63-60 Is in the clinical-borderline range and is in the clinical range if the T score is greater than 63. Also, in the 8 scales of emotional-behavioral problem or syndrome، if the person's T score is less than 65، it is in the normal or non-clinical range، and if the T score is between 69-65، in the borderline-clinical range، and if the T score is greater than 69. Is in the clinical range. (The method of calculating the T score is presented below). The Child Behavior Inventory (CBCL) is a tool that is completed by a parent or other person who is well acquainted with a child's behavioral competencies and problems. This tool can be implemented both as a self-report and as an interview. CBCL can also be used to measure a child's behavioral changes during or after treatment.
The overall validity coefficients of CBCL forms were reported to be 0.97 using Cronbach's alpha and 0.94 using retest validity. Content validity (choice of question logic and use of class one analysis of questions) criterion validity (using psychiatric interview with child and also correlation with CSI-4 scale) and construct validity (internal relations of scales and group differentiation) of these forms have been reported as desirable. This tool has been translated and standardized for the first time in Iran by Tehrani Doust et al. In the enamel research the range of internal consistency coefficients of the scales using Cronbach's alpha formula has been reported from 0.63 to 0.95. The temporal stability of the scales has been investigated using the test-retest method with a time interval of 5-8 weeks and the range of temporal stability coefficients has been obtained from 0.32 to 0.67. The agreement between the respondents was also examined that the range of these coefficients ranged from 0.09 to 0.67. In general، in Minaei research (14) it has been concluded that this questionnaire has a desirable and high validity and validity and can be used with confidence to assess emotional-behavioral disorders in children and adolescents aged 6-18 years.

Teacher-Student Relationship Quality Questionnaire (IT-SR): This questionnaire was developed by Murray and Zovich for use in the teacher-student communication atmosphere. This questionnaire consists of 17 items and has three factors of communication (8 items), trust (5 items) and alienation (4 items). Test scoring is based on Likert's four-choice spectrum. The subject's overall score will be equal to the sum of the scores of the three subscales، and higher scores indicate better communication quality. Beyrami et al. (15) mentioned the validity of the quality of teacher-student relations as 0.82، which indicates the high and acceptable validity of the questionnaire. For the sake of reliability in Murray and Zovac research، Cronbach's alpha coefficient for the teacher-student relationship quality scale was 0.89, which indicates its good internal consistency. In Iran،

Beyrami et al. calculated the Cronbach's alpha coefficient for the teacher-student relationship quality scale to be 0.84 and also obtained the reliability of the questionnaire components according to Table 2.

Table 2- Components of Teacher Relationship Quality Questionnaire and their alpha coefficients

Components	Question number	Cronbach's alpha coefficients
Relationship	8-1	0/79
the trust	13-9	0/77
Alienation	17-14	0/75

Results:

General characteristics of subjects before and after 12 weeks of cognitive-behavioral therapy and follow-up are presented in Table 3.

Table 3- Mean Standard age deviation of subjects in experimental and control groups

Maximum	minimum	Age (mean standard deviation)	Number	group
18	12	14/1±78/80	14	Experimental
18	12	15/1±76/92	13	Control

The results of Table 3 show that the mean and standard deviation of the age of the subjects in the experimental group is 14.1 78 78.80، and the mean and standard deviation of the age of the subjects in the control group is 15.1 76 76.92.

The child behavioral inventory variable and its components are presented separately in the experimental and control group subjects in pre-test، post-test and follow-up in Table 4.

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Table 4 - Mean± standard deviation of child behavior list and its components in experimental and control subjects

Variable	group	Mean±standard deviation		
		pre-exam	**Post-test**	**Follow up**
Anxiety / Depression	Experimental	18.78±2.57	15.28±1.89	**15/42±1.69**
	Control	18.92±3/47	1.15±3.02	**19.92±2.84**
Isolation/ Depression	Experimental	10.07±2.26	7.42±2.10	**7.42±2.31**
	Control	8.84±2.54	9.0±2.73	**9.61±2.43**
Physical complaints	Experimental	4.57±1.22	4.14±1.35	**3.64±1.39**
	Control	4.46±1.39	4.38±1.26	**94.61±1.44**
social problems	Experimental	11.50±3.56	7.42±2.84	**7.85±2.71**
		9.92±3.40	9.92±3.42	**10.15±3.18**
Thinking problems	Experimental	15.78±2.45	9.92±3.42	**15.35±2.53**
	Control	19.84±3.13	15.78±2.45	**19.92±3.04**
Attention problems	Experimental	9.85±2.50	19.84±3.13	**10.14±2.41**
	Control	12.23±2.31	9.85±2.50	**12.61±1.89**
Ignore the rules	Experimental	19.35±2.30	12.23±2.31	**19.14±2.34**
	Control	24.38±2.69	19.35±2.30	**25.07±2.81**
Aggressive behavior	Experimental	23.07±3.58	24.38±2.69	**22.42±4.05**
	Control	27.92±3.07	23.07±3.58	**29.84±3.15**
Internalized behavioral problems	Experimental	29.30±2.86	29.38±3.04	**26.50±4.12**
	Control	33.42±5.07	26.85±4.27	**34.15±3.55**
Externalized behavioral problems	Experimental	32.23±3.98	32.53±3.55	**41.57±5.25**
	Control	51.92±4.76	42.42±4.84	**56.92±3.56**
General problems	Experimental	53.38±2.72	53.76±3.32	**101.42±9.38**
	Control	129.07±11.11	102.35±9.18	**131.76±5.93**

Table 4 shows the descriptive information including the mean and standard deviation for the child behavior list variable and its components separately in the experimental and control groups in three stages of evaluation.

The variable of adolescent teacher interaction and its components are presented separately in the subjects of the experimental and control groups in pre-test، post-test and follow-up in Table 5.

Table 5 - Mean ±standard deviation of adolescent teacher interaction and its components in experimental and control subjects

group	Variable	Mean±standard deviation		
		pre-exam	**Post-test**	**Follow up**
Experimental	**Relationship**	1.97±17.01	1.91±16.14	**2.46±12.92**
Control		2.64±12.15	2/60±12/15	**2.86±12.30**
Experimental	**the trust**	2.31±7.42	2.10±7.42	**2.26±10.07**
Control		2.43±9.61	2.73±9.0	**2.54±8.84**
Experimental	**Alienation**	1.39±3.64	1.35±4.14	**1.22±4.57**
Control		1.44±94.61	1.26±4.38	**1.39±4.46**
Experimental	**Total score**	3.69±35.64	3.16±34.0	**4.02±26.28**
Control		2.83±25.30	2.06±26.53	**2.11±27.15**

Table 5 shows the descriptive information including the mean and standard deviation for the adolescent teacher interaction variable and its components separately in the experimental and control group subjects in three evaluation stages.

Table 6- Results of Shapiro-Wilk test in relation to child behavior list and its components

			Follow up		**Post-test**		**pre-exam**	
Variables	**group**	**Number**	P	Statistics	P	Statistics	P	**Statistics**
Anxiety / Depression	Experimental	14	0.51	0.947	0.25	0.924	0.83	**0.967**
			0.16	0.906	0.18	0.911	0.51	**0.944**
	Control	13	0.27	0.927	0.36	0.936	0.77	**0.963**

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Isolation/ Depression	Experimental	14	0.06	0.879	0.09	0.889	0.65	**0.954**
	Control	13	0.06	0.884	0.41	0.940	0.24	**0.923**
Physical complaints	Experimental	14	0.74	0.926	0.28	0.924	0.82	**0.956**
	Control	13	0.52	0.984	0.75	0.962	0.71	**0.959**
social problems	Experimental	14	0.89	0.970	0.42	0.937	0.69	**0.956**
	Control	13	0.27	0.927	0.76	0.962	0.60	**0.953**
Thinking problems	Experimental	14	0.66	0.954	0.49	0.943	0.59	**0.950**
	Control	13	0.56	0.950	0.42	0.941	0.30	**0.930**
Attention problems	Experimental	14	0.39	0.935	0.45	0.940	0.33	**0.929**
	Control	13	0.16	0.911	0.01	0.842	0.25	**0.925**
Ignore the rules	Experimental	14	0.95	0.976	0.80	0.964	0.83	**0.965**
	Control	13	0.03	0.864	0.05	0.877	0.05	**0.875**
Aggressive behavior	Experimental	14	0.20	0.913	0.18	0.910	0.16	**0.907**
	control	13	0.44	0.942	0.64	0.955	0.47	**0,944**
Internalized behavioral problems	Experimental	14	0.11	0.895	0.95	0.976	0.92	**0.972**
	Control	13	0.77	0.963	0.46	0.944	0.64	**0.955**
Externalized behavioral problems	Experimental	14	0.26	0.922	0.42	0.937	0.81	**0.964**
	Control	13	0.23	0.922	0.65	0.956	0.71	**0.959**
General problems	Experimental	14	0.61	0.951	0.65	0.954	0.45	**0.944**
	control							

As shown in Table 6، the value of Shapiro-Wilk test statistic in all groups and in all stages of evaluation is not significant for the distribution of the child behavioral inventory variable and its components ($p < 0.05$), this indicates the distribution of data among the groups. Are normal.

Table 7- Shapiro Wilk test results in relation to adolescent teacher interaction and its components

Variables	group	Number	Follow up		Post-test		pre-exam	
			P	Statistics	P	Statistics	P	**Statistics**
Relationship	Experimental	14	0.38	0.937	0.04	0.871	0.17	**0.913**
	Control	13	0.91	0.972	0.15	0.904	0.16	**0.907**
the trust	Experimental	14	0.23	0.922	0.69	0.958	0.59	**0.952**
	Control	13	0.006	0.976	0.33	0.929	0.22	**0.917**
Alienation	Experimental	14	0.14	0.907	0.007	0.814	0.32	**0.932**
	Control	13	0.37	0.933	0.11	0.895	0.33	**0.930**
Total score	Experimental	14	0.24	0.923	0.94	0.976	0.12	**0.904**
	Control	13	0.20	0.913	0.76	0.961	0.69	**0.956**

As shown in Table 7، the value of Shapiro-Wilk test in all groups and in all stages of evaluation is not significant for the distribution of adolescent teacher interaction variables and its components ($p < 0.05$), this indicates the distribution of data between groups. Are normal.
Table 8 shows the results of repeated measures analysis of variance to examine the main effects of time and the interaction effect of time and group on the teacher-adolescent interaction variable by modifying degrees of freedom using the Greenhouse-Geiser test.

Table 8- Results of analysis of variance with repeated measures for the main and interactive effects of teacher-adolescent interaction

group	Sources of changes	Average squares	Test power	Effect size	Significance level	Degrees of freedom	F
Teacher and adolescent interaction	Time effect	142.550	1.00	0.793	0.001	1	**95.709**
	Time Interaction * Group	270.750	1.00	0.879	0.001	1	**181.752**

Table 8 shows the results of repeated measures analysis of variance for the teacher-adolescent

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interaction variable. It is clear from the content of the table that the main effects of time are significant (p <0.001). The interaction of time and group is also significant (p = 0.001). The effect of time shows that there is a significant difference between pre-test، post-test، and follow-up. The magnitude of the effect on the time variable shows that 79% of the changes in the variable are due to time changes. Also، the size of the effect of time-group interaction is 0.87، which shows that approximately 87% of the variance changes in teacher-adolescent interaction are due to time changes in at least one of the two groups.

To evaluate the difference between the mean of interaction with peers and adolescents in the three stages of evaluation، Bonferroni post hoc test was used، which is shown in Table-9.

Table 9 - Bonferroni test results for teachers and adolescents interaction variable

Group	Base stage (average)	Comparative stage (average)	Significance level	standard error	Mean difference
Experimental	**pre-exam** (26.28)	**Post-test** (34.0)	0<001	0.438	**-7.714**
		Follow up (35.64)	0<001	0.440	**-9.35**
	Post-test (34.0)	**Follow up** (35.64)	0<001	0.225	**-1.634**
Control	**pre-exam** (27.15)	**Post-test** (26.53)	0.36	0.368	**-0.615**
		Follow up (25.30)	0.02	0.587	**1.846**
			0.067	0.469	**1.231**

The results shown in Table 9 show that the difference between the three test stages in the experimental group is significant (p <0.001). Due to the difference in ratios، scores from pre-test to post-test and review have been found. (001/0> p). The difference between the three stages of the test، except for the pre-test and the post-test، was significant in the control group. It should be noted that significance and increasing the score means that existence is worse. However، for more accuracy in the results and more confidence، given that the Bonferroni test is collected، the main group structure and time should be considered. Figure 1 shows the main shape of the group and time geometrically.

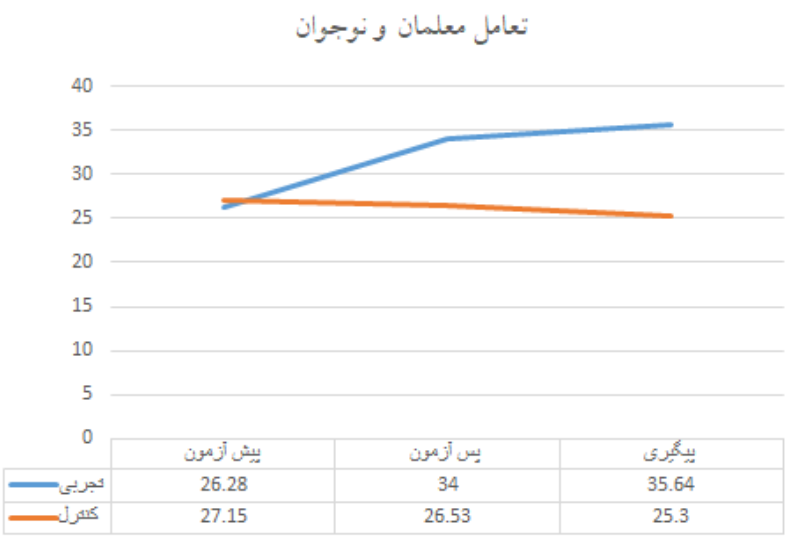

Chart - 1. Chart of changes in teacher-adolescent interaction over time by groups

Discussion and conclusion:

In this study، the effect of cognitive-behavioral therapy program for adolescents with ADHD on interaction with teachers was studied. The results showed that the cognitive-behavioral therapy program for adolescents with ADHD had a significant effect on their interaction with teachers. The results of this study can be considered in line with the results of research by Hesslinger et al. Hirivowski et al. Stonson et al. Wiggins et al. and Ramsey and Rastin. Explaining the findings، it can be said that cognitive-behavioral therapy shows the patient how certain patterns of thinking can exacerbate the unpleasant symptoms of ADHD. This type of treatment uses behavioral techniques to teach the patient how to weaken specific behaviors and destructive practices (such as extreme irritability or withdrawal) in times of stress. Cognitive-behavioral therapy helps patients become aware of the behavioral and cognitive effects of ADHD symptoms in their lives، and to reduce important ADHD symptoms، change their thought patterns and circumstances so that their behavior is not just a reaction to the situation، but in Think about it and act in more appropriate ways. The basis of cognitive-behavioral therapy helps people with ADHD to control their thoughts in a way that makes them behave rationally، intellectually، with objective and specific goals. This treatment helps patients make immediate changes in their lives with specific strategies. It also emphasizes the replacement of positive thoughts with negative thoughts and realistic thinking (16). Cognitive-behavioral therapy teaches patients that they can find solutions to many of their day-to-day problems through planning and organizing skills. These skills can significantly reduce the amount and severity of everyday problems they encounter (17). In fact، cognitive-behavioral therapy by targeting the overlapping problems of patients with ADHD، including disordered social relationships، anxiety، anger، depression and sleep problems، provides the basis for personal growth and increased motivation in these patients to better understand the symptoms of the disease. Control themselves (18). Strengthening intrinsic motivation is the most important goal in the

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cognitive-behavioral therapy of adolescents with ADHD. To achieve this goal، patients are encouraged to reward themselves after planning and implementing it. In addition to these rewards، completing and completing the task is in itself a reward that gives clients a sense of accomplishment. Success is a very powerful motivator. High motivation increases a person's attention and concentration and reduces his inner restlessness (19). The cognitive-behavioral therapy process makes great efforts to reduce patients' impulsivity problems. Problem-solving methods teach patients to consider possible solutions and potential outcomes instead of responding impulsively to issues. During treatment، patients with ADHD، who are unable to delay the acquisition of pleasure، learn to largely overcome their impulsive problems by turning tasks into smaller steps and receiving rewards. During cognitive-behavioral therapy، patients are asked to set behavioral goals for all of their problems، including impulsivity. The behavioral purpose should be clear and its frequency should be assessed by the patient himself or his acquaintances (friend، spouse، family members). When patients take responsibility for controlling their impulsive behaviors، their self-awareness increases، and self-monitoring learning in this way acts as a reduction strategy. All the techniques used to deal with impulsivity force the patient to stop and look at the situation from different perspectives and think about the consequences of his behavior (17). Thus، cognitive-behavioral therapy، by teaching patients' extensive skills، greatly reduces central symptoms in these patients.

The significant increase in the number of children with attention deficit hyperactivity disorder (ADHD) over the past few years has had a significant impact on the education system. In fact، in the United States، additional spending by public schools on behalf of ADHD students in 1995 was more than $ 3.2 billion (20). As a result، in addition to becoming a public health issue، ADHD has also become a related educational topic. In addition، after decades of research، there is no doubt that ADHD is chronic in nature. The disease manifests itself in early childhood and persists to an alarming degree during childhood and adolescence and into adulthood. Symptoms of this disorder cause changes in school and family functioning and relationships with classmates، and they do not have a long-term psychological، social، and academic setting (21).

During adolescence، the control and assistance of parents and teachers decreases compared to childhood، while the transition to high school increases the need for executive performance and especially planning skills (22). When adolescents with ADHD have planning problems، it can disrupt school، family، and social functioning (23). Because evidence-based non-drug therapies for adolescents with ADHD are lacking (24). A recent study by Evans et al. (2014) showed that behavior management interventions، which consider parental behavior education، behavioral classroom management، and behavioral peer behavioral interventions، are the criteria for fixed criteria and treatments. A Cognitive Behavioral Therapy (CBT) has been developed that focuses on life planning skills، and each session provides a list of tasks for adolescents with ADHD to perform a consistent task that can be discussed and taught. (25). In relation to drug and cognitive-behavioral interventions، research points to the superiority of cognitive-behavioral therapies if continued and implemented by adult subjects. Hundreds of studies have shown the beneficial effects of psychedelics on the cognitive and behavioral functioning of people with ADHD.

But pharmacological interventions have a number of limitations (26). In the first place، despite their obvious benefits to daily classroom performance، stimuli have not been shown to cause long-term changes in the performance of children with ADHD or in specific areas. Along the same lines، although stimuli reduce disruptive behavior، there is no evidence that interpersonal relationships، which typically change in adults and adults with ADHD، are altered. In addition، only between 70% and 80% of children with ADHD show a positive response to psychiatric stimuli، with significant individual differences in response size and topography، so that prophylactic drugs benefit in some aspects of behavior، but in some No more. Also، as Pelham and Ganagi point out، "simply making children physicians without teaching the skills needed to improve their behavior and performance does not confirm children's long-term prognosis. "
The effects of hyperactivity on the interactions between students with the disorder and their teachers and the level of teacher stress are well known. Using the Teaching Stress Index، a tool for assessing the mental level of teacher stress and frustration in responding to instruction and interaction with a particular student، it has been shown that elementary school teachers significantly outperform students with ADHD compared to their classmates. They are trained for stress. Students with ADHD who exhibit aggressive / aggressive behavior or severe social impairment are trained significantly more stressfully than students with ADHD who do not demonstrate these related problems (18). Some studies have reported the effectiveness of CBT in adolescents with ADHD، although it has been superior to concomitant treatment with CBT and medication (4).

Ethical considerations:
Before the test، parents were told that we were planning to conduct research to evaluate the effectiveness of cognitive-behavioral therapy programs for adolescents with ADHD on their interaction with teachers. They were assured that the information you wrote was completely confidential and would not be shared with anyone. Be abbreviated.

Research Limitations:
Children with ADHD on some days suffer from severe disorders and abuses for various reasons، which has always been a problem during the implementation of the current intervention method and has made it difficult to continue working؛ Also، this study is included in the age range of 12 to 18 years and includes children in primary school and cannot be generalized to all ages.

Research application:
Finally، according to the research results and the great effect of cognitive-behavioral therapy program for adolescents with ADHD on their interaction with teachers، it is suggested that this program be used to increase the interaction between teachers and adolescents.
Conflict of interest:
There is no conflict of interest between the authors.

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