

The Effectiveness of Group Interventions based on Parent-child Relationship on Promoting the Mental Health of Parents of Children with Attention-Deficit Hyperactivity Disorder

Research Article

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Abstract

Attention-deficit hyperactivity disorder is one of the most commonly diagnosed disorders that has recently been increasingly considered by psychologists and researchers. Due to its nature, this disorder also affects on mental health of parents, in addition to the child's health. Objective: The present study was conducted to investigate the effectiveness of group interventions based on parent-child relationship on promoting the mental health of parents of children with Attention-Deficit Hyperactivity Disorder, aged 6-11 years. Methodology: In a quasi-experimental study using pre-test and post-test design with three experimental groups of pharmacotherapy, combined (pharmacotherapy and family-oriented intervention) and family-oriented, mothers of 30 children with ADHD disorder were selected by multi-stage cluster sampling method; these subjects were randomly selected from the educational districts of Tehran. The combined and family-oriented groups were trained in a parent-child relationship group for 10 sessions and the drug therapy group received only medication. All subjects were evaluated by Mental Health Scale in two stages (before intervention and after intervention). Data was analyzed using covariance analysis. Findings: The results showed that the implementation of educational program based on parent-child relationship resulted in a significant increase in the mental health of parents of children with hyperactivity and attention deficit disorder in the combined and family-oriented groups. Conclusion: Interventions based on parent-child relationship with pharmacotherapy (combined method) are effective in increasing the mental health of parents of children with hyperactivity disorder and attention deficit disability; therefore it is suggested that therapists use this method to help this group.

Keywords: Family-oriented psychological interventions, Parent-child relationship education, Attention-deficit hyperactivity disorder, Mental health.

Introduction

The evidence has shown that the prevalence of attention deficit hyperactivity disorder has increased significantly over the past two decades (1). Attention deficit hyperactivity disorder is one of the most common behavioral and neurobiological disorders (biological nerve), which is known in childhood (2). This disorder is overly pervasive and persistent and is characterized by neglect, hyperactivity and impulsivity (3). The prevalence of this disorder was reported to be 18.1% (4) and 20.2% (5). According to studies (6), the prevalence of ADHD was 12.3% in pre-primary school children, 15.2% in primary school boys; this rate turned out to be 16.2% in (7,8) studies. Although ADHD is more likely to be diagnosed in children, the level of recognition in adulthood is equal in men and women (9).

According to the Diagnostic and Statistical Manual of Psychiatric Disorders, DSM-5's 5th Edition, Children with Hyperactivity Disorder often do not

listen, do not finish the assigned assignments, dream about their imagination, and lose their belongings. They start one activity before finishing another; some of them even don't pay attention to details; thus they might be called careless; they are, often, unconventional and unable to organize and avoid doing things that require mental effort; they get distracted quite easily, shake their feet and hands, cannot wait their turns, are boisterous, and interfere with what other people are busy with. The majority of children with ADHD experience anxiety disorder in adolescence (10) and the problems of the evolution of identity and social communication (11) and the likelihood of being rejected by their friends and peers (12). They are, also, exposed to high-risk behaviors, such as smoking (13) and anti-social behaviors. (14)

Scientific evidence strongly suggests the existence of a biological basis. The study of (15) shows that there is an interaction between family structures (low economic status and single parenthood) and ADHD symptoms. Studies (16, 17) also show that there is a relationship between the personality traits and the mental harm of parents and the symptoms of ADHD in children. Hereditary factors, personality and temperament, pre and postpartum factors are in interaction with environmental factors (such as parental parenting, enrichment or punishment and educational factors). (18)

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(19, 20,21), believe that mothers of those who have attention deficit hyperactivity disorder children experience anxiety more frequently in comparison with the mothers of other healthy children. Mothers of children with ADHD have many problems, as these children are more likely to show anxiety, aggression, hostile behaviors, non-compliance, low self-esteem, low instinct control, and disability. For example, many mothers who spend their whole time with the child feel angry, embarrassed and guilty because they have insufficient control over arousal and impulsiveness, hostile behaviors and aggression, disability, inability to postpone satisfying their needs. As a result, parents face with many challenges in raising their children more effectively and experience feelings such as frustration due to the lack of readiness; the majority of parents start raising children without having the smallest clue and give everything to trial and error (22). In addition, these parents may attribute the child's problems to their deficiencies in relation to the inadequacy of child care, which is usually accompanied by self-blame, and their parents have unrealistic beliefs about the child and themselves (23). Children's families are more likely to experience more parents' pressure and feel that parents are not desirable; alcohol consumption increases in parents and parents' depression gets even greater (24). One of the treatment interventions for children with ADHD is group-based parent-child-related CPRT (Children Parent Relation Training) education, which is a supported type of PMT (Parent Management Training). Several studies have highlighted the effectiveness of the child-centered therapeutic game therapy on reducing externalization problems, behavioral problems, especially aggression and ignoring the rules, emotional-behavioral problems, and impulsive and explosive behavior in children (25,26, 27, 28). Landert (29) believes that this method will empower parents and reduce feelings of guilt and frustration in them. Focusing on this method, in addition to improving the child-parent relationship, makes parents understand and accept the emotional world of the child, gain a more realistic and patient attitude towards themselves and the children, increase their parents' awareness of their relationship with the children and enjoy their roles as parents. Therapeutic game is an intervention the underlying assumption of which is that the relationship between the child and the parent is the main treatment that leads to the reduction of symptoms. Also, therapeutic games are direct interventions that, due to the nature of the intranasal, lead to objectification and thus increase the effectiveness of intervention (20). Parent-child-oriented group-based interventions (CPRTs) focus on improving parent-child relationships through playing, and based on the assumption that improves this relationship through the game improves the child's emotional and behavioral problems (29).

According to what was stated above, identifying an effective, efficient and short-term treatment method for increasing the mental health of parents of children with ADHD seems to be necessary. Therefore, the present study was conducted to investigate the effectiveness of group interventions based on parent-

child relationship on promoting the mental health of parents of children with Attention-Deficit Hyperactivity Disorder

Methodology

The present study is a part of semi-experimental research in terms of data collection method and is a fundamental research component in terms of purpose. The design used in this study was pre-test and post-test with three experimental groups.

Study population, sample, and sampling methods

The research population includes all mothers of children aged 6-11 years with attention deficit hyperactivity disorder (ADHD) in Tehran.

Sampling method: In this research, multi-stage cluster sampling method was used. Initially, District 1 Education and Training Office in Tehran was randomly selected; then, a boys' elementary school was chosen randomly from the elementary school boys in that area. Finally, the students of all classes were evaluated by the Connors questionnaire, and 30 students randomly obtained high grades. The subjects were divided into three groups of 10, (Drug therapy, combined (drug therapy and family-oriented intervention) and family-oriented.

Sample size: In this study, 30 subjects (10 in drug therapy group, 10 in combined-treatment, and 10 in family-oriented intervention group) were analyzed.

The content of training program

The content of these training sessions is based on improving the parent-child relationship and creating empathy and acceptance by the parents for the child. The practical training program in this therapeutic approach consists of 10 sessions, the overall procedure of which works like the following.

The first and second sessions include the importance of the game, the rules and procedures for playing parental games with the child at home. Do's and Don'ts of the game's sessions are taught and the type of toys required for the sessions, venue and play time is introduced with the child. The third and fourth sessions include teaching parents how to respond to the emotions and feelings of the child. The fifth session focuses mainly on the skills parents have learnt in relation to the child's play. The sixth and seventh sessions were devoted to training limiting skills for inappropriate child behavior or to defy the rules of the game and to educate the child about their choice of obeying or breaking the rules. The eighth session re-examines the exercises related to the implementation of the skills learned in the previous sessions and generalizes them to off-site situations. Responses to self-esteem in relation to the behaviors and efforts that the child is doing is one of the other issues discussed at this meeting. The ninth session addresses the major problems of parents in some skills and emphasizes the continuation of the sessions on a weekly basis and the generalization of skills. Dancing and storytelling is also one of the exercises discussed at this meeting. The final session will also highlight the

strengths of parents in relation to the first meeting, reviewing the initial problems of parents and the improvements they have found. Polls about the effectiveness of the parenting method and setting up a plan for continuing parent group meetings and communicating with the therapist, as needed, are among the other issues discussed at the closing meeting (29).

Data collection tools

1. **Clinical interviews:** In this research, subjects were interviewed by psychiatrist and psychologist.
2. **Connors parent questionnaire:** The questionnaire consists of 26 questions which are graded from 0 to 3 in the Likert scale, and measures such as over-active and neglected and decentralized by the parents. Connors et al (30) reported a reliability of this scale to be 90%. The validity of this questionnaire was confirmed by the Institute of Cognitive Sciences (0.85) (31).
3. **General Health Questionnaire:** Beirmai (32) first set up the General Health Questionnaire. This questionnaire comes in four forms of 12, 28, 30, and 60 questions. (32) designed the 28 questions of the questionnaire for the first time by implementing a factor analysis method on its long form. The questionnaire consists of four subscales (physical signs, anxiety and sleep deprivation, social function disorder and depression). All materials of the general health questionnaire are four options and the method

of scoring is to use the simple Likert model as (0, 1, 2, and 3). The total score of each person will be from zero to 84. A lower score indicates higher general health. Taquawi (33) evaluated the validity of the questionnaire using three methods: Cronbach's alpha, Crossover and Dysfunctional, respectively, and obtained credit coefficients of 0.70, 0.93 and 0.90, respectively. Also, simultaneous validity of this questionnaire was calculated by performing simultaneously with the Midlex Hospital questionnaire, with a correlation coefficient of 0.55.

Data analysis method

To analyze the statistical data, descriptive statistics of mean and standard deviations and inferential statistics of single-variable covariance analysis and multiple Bonferroni tests were used.

Data analysis tool: SPSS23 was used to analyze collected data.

The findings of this study are presented in two sections. In the first section, the descriptive findings are presented and in the second part, inferential findings derived from data analysis and hypothesis testing are presented.

The demographic data from the sample group showed that the mean age of the children of the participants was 8.53 with a standard deviation of 1.52. The highest frequency of children ages is 8 years.

Table 1: Descriptive Characteristics (mean and

standard deviation) of dependent variables of mental health and mental health components in parents of children with attention deficit hyperactivity disorder in pretest and posttest stages.

Groups	Variables	Pre-test		Post-test	
		Mean	SD	Mean	SD
Drug therapy	Mental health	70.5	8.4	65	7.2
Combined	Mental health	68	9	54.4	7.4
Family oriented	Mental health	74.5	8	64.6	8.5
Drug therapy	Physical problems	19.2	2.4	17	2.7
Combined	Physical problems	17.2	3.4	11.3	2.5
Family oriented	Physical problems	19.3	2.9	16.5	3
Drug therapy	Anxiety	14	5	11.7	4.8
Combined	Anxiety	14.3	4	8.6	3.9
Family oriented	Anxiety	17	2.7	13.8	3
Drug therapy	Physical function	21.8	3.5	19.8	3.4
Combined	Physical function	21	2	16.2	3.3
Family oriented	Physical function	21	2.7	15.8	3
Drug therapy	Depression	15.4	5.2	16.3	5
Combined	Depression	15.7	3.7	13.3	3.2
Family oriented	Depression	17.4	3.5	18.5	3.7

As it is seen in Table 1, the average score in the pre-test stage in the groups is higher than the mean in the post-test phase. These differences are more obvious in the combined. It should be noted that lower scores in each of the mental health variables and their components indicate higher mental health.

Second part: Inferential Findings

Using the covariance analysis test requires some basic assumptions that include homogeneity of variance, homogeneity of continuity and homogeneity of regression slope. Before the analysis of the covariance of the assumptions was examined. The results are presented in the following order.

Homogeneity assumptions of variances: In this study, Levene's test was used to test the homogeneity of variances.

Table 2: Levene's test to verify homogeneity of variances

Dependent variable	E	First degree of freedom	Second degree of freedom	Third degree of freedom
Mental health	2.7	27	2	0.84
Physical problems	251	27	2	0.3
Anxiety	2.6	27	2	0.09
Physical function	2.1	27	2	0.15
Depression	0.75	27	2	0.48

The results of the Levene test in Table 2 show that the variables of the research have variance homogeneity, because the value of F is not significant in each of the variables.

Regression tilt homogeneity assumption: Covariance analysis is based on the assumption that the regression coefficient between the independent variables and the summation (pre-test) should not be significant.

Table 3: Homogeneity analysis of regression slope of pre-test and independent variables

Variable	Total squared	Mean squared	F	Degree of freedom	Significance level
Mental health	43.8	21.9	2.9	2	0.07
Physical problems	6.46	3.23	1.33	2	0.28
Anxiety	1.02	0.512	0.24	2	0.789
Physical function	43.69	21.18	2	2	0.08
Depression	1.36	0.68	1.2	2	0.413

Table 3 shows that the F value for each of the variables is not significant. Therefore, covariance analysis can be used to analyze data. Table 4 summarizes the results of single-variable covariance analysis in this study.

Table 4: The results of covariance analysis of post-test scores in three experimental groups, with pre-test score (compromise)

Variable	Source	Total squared	Degree of freedom	Mean squared	F	Eta square
Mental health	Pre-test	1386	1	1386	163.13	0.86
	Group	230.4	2	165.2	19.4	0.59
	Error	220.9	26	8.5		
Physical problems	Pre-test	130.8	1	130.8	52.6	0.67
	Group	59.9	2	47.9	19.3	0.6
	Error	64.7	26	2.48		
Anxiety	Pre-test	379.8	1	379.8	188.9	0.789
	Group	61.9	2	15.4	15.4	0.542
	Error	52.2	26	2.01		
Physical function	Pre-test	104.7	1	104.7	15.9	0.38
	Group	58.3	2	29.18	4.4	0.255
	Error	170.8	26	6.6		
Depression	Pre-test	415.8	1	415.8	728.8	0.966
	Group	16.7	2	8.35	4.6	0.53
	Error	14.8	26	14.6		

According to Table 4, the F value in each of the variables of mental health pre-test, physical problems, anxiety, social function and depression is significant at the level of 0.01. The value of the variance explained by the dependent variable is mental health is 0.86, physical problems 0.67, anxiety 0.789, social function 0.38 and depression 0.966.

F test for independent variables of mental health was 19.4, physical problems 19.3, anxiety, 4.4 functional function and 4.6 depression, which was significant at 0.01 level. The amount of variance explained for mental health was 0.59, physical problems 0.6, anxiety 0.542, social function 0.255 and depression 0.33.

Table 5: Mean difference and mean deviation error of groups

Variable	Drug therapy and combined		Drug therapy and family-oriented		Family-oriented and combined	
	Mean	Mean error	Mean	Mean error	Mean	Mean error
Mental health	8.18	1.314	3.48	1.33	-4.7	1.37
Physical problems	4.3	0.735	0.67	0.705	-3.62	0.738
Anxiety	3.28	0.63	0.53	0.66	-2.76	0.65
Physical function	2.68	1.16	3.22	1.15	0.543	1.14
Depression	-1.7	0.33	-0.3	0.34	1.40	0.34

The data in tables 1 and 5 show that the mean score of the combined group (54.4) was lower than the drug therapy group (65) and the family-oriented group (64.5) in the domain of mental health variable, a difference which is significant at the level of 0.50. However, there is no significant difference between the mean scores of the drug therapy group and the mean of the family-oriented group. Therefore, the combined method is better than the method of drug therapy and family-oriented. In the domain of physical problems, the mean score of the combined group (11.3) was lower than the drug therapy group (17) and the family-oriented group (16.5), a difference which is significant at the level of 0.50. However, there is no significant difference between the mean scores of the drug therapy group and the mean of the family-oriented group. Therefore, the combined method is better than the method of drug therapy and family-oriented.

In the domain of anxiety, the mean score of the combined group (8.6) was lower than the drug therapy group (11.7) and the family-oriented group (13.8), a difference which is significant at the level of 0.50. However, there is no significant difference between the mean scores of the drug therapy group and the mean of the family-oriented group. Therefore, the combined method is better than the method of drug therapy and family-oriented.

In the domain of social function variable, the mean score of the combined group (16.2) and family-oriented one (15.8) was lower than the mean of drug therapy group (19.6), a difference which is significant at the level of 0.50. However, there is no significant difference between the mean scores of the combined and family-oriented groups. Therefore, combined and family-oriented interventions are much better than drug therapy as an intervention.

In the domain of depression, the mean score of the combined group (13.3) was lower than the drug therapy group (16.3) and the family-oriented group (18.5), a difference which is significant at the level of 0.50. However, there is no significant difference between the mean scores of the drug therapy group and the mean of the family-oriented group. Therefore, the combined method is better than the method of drug therapy and family-oriented.

Discussion

The results of the present study are consistent with the findings of the following research: Maghoom, (34), Afshar (35), Chan (36), Timer (37), Lyndo, (38), and Tophen, (3).

The results of (34) study indicated that the

treatment of game therapy based on parent-child relationship has significantly decreased the stress, anxiety and depression of mothers. Jafari, (39) found that positive parenting program is effective in promoting the mental health of mothers of attention deficit hyperactivity disorder children. (35) showed that the treatment of game therapy based on the parent-child relationship, in the components of both parental and childhood scales, had a significant effect on parental stress, with the exception of the acceptance subscale, and generally decreased parental stress. (36) have shown that parenting-child-centered learning therapy is effective in mothers with mentally disabled children in reducing their depression. The emotions affecting the parent-child relationship affect the parent's condition and reduce the parents' anxiety and restore the parent-child relationship. (37) also found that the treatment strategy of parenting-child-based game therapy was lower due to parents' communication, psychological and behavioral harm among children and parents. The results of (38) study indicated that support provided by counterparts and therapists during parenting sessions reduced parental stress and possibly improved the quality of parent-child relationships by creating a sense of self-control and improving the levels of parents' exposure to child behavioral problems, which ultimately led to the emergence of more rational solutions. (3) indicated that parenting-child-based group therapy based on parental-child relationships reduces stress in parents (40) showed that parent-child-oriented group-based therapy reduces the level of stress in parents, but also leads to empathic interactions between parents and children and more acceptance in both partners.

These studies have shown this kind of has reduced mental and social problems of their mothers has been effective in maintaining the mental health of these mothers. Parents of children at risk of behavioral and emotional problems are often less likely to be assertive about their parenting role (41), and they know that their current approach is not effective in controlling their child, and thus, they are eager to learn new skills (41). Parents in attendance at the workshop teach children the best ways of parenting and interacting with the child, and this reduces child's problems and communication problems between parents and the child. This will ultimately reduce the mental health problems of mothers.

Having a child with attention deficit hyperactivity disorder can exacerbate the stress, anxiety and depression of the parents, and improving the symptoms of the disorder will facilitate the relaxation

of the parents' mental health (42). In parenting-child-oriented group-based group therapy, parents learn that they are not the cause of their child's behavioral problems. This reduces parents' sense of guilt, especially for parents who are child therapists themselves, thus having control over managing the behavior of children, which ultimately decreases the parents' helplessness and anxiety. Focusing on this method, in addition to improving the child-parent relationship, makes parents understand and accept the emotional world of the child, gain a more realistic and patient attitude towards themselves and the child, increase their parents' awareness of their relationship with the child, and enjoy their role as a parent. Parents' attitudes toward the child's problem can be effective in the treatment process. For this reason, it's essential for parents to be taught important information about their child's disorder. Parents should know that they are not the cause of the disorder and that many of the child's problems can be cured. The group process governing the family-centered approach is important at influencing it because most parents, having children with ADHD, are having difficulty interacting with their child and their feelings and emotions are response to moderately and sympathetically in the group. The emotions affecting the parent-child relationship affect the parent's condition and reduce the parents' anxiety and restore the parent-child relationship. The support provided by parents and paramedics during parenting sessions reduces parental stress and possibly improves the quality of parent-child relationships by creating a sense of self-control and improving the levels of parental survival against children's behavioral problems, leading to more logical strategies. Increasing the mental health of mothers can be partly dependent on the group process in this method of treatment and support that they receive from peers and therapists during meetings, and expressing the strengths of the parents in meetings, improving the relationship between the child and the parent, increasing the adoption of the child and Change the kind of look at the child's disorder and increase the perception and understanding of the nature of the disorder, the feeling of parental control over the child's behavior and increasing the limitation of skills for inappropriate child behaviors or non-compliance with the rules and, finally, the acceptance and reflection of the child's feelings and thoughts and the emotional world of the children.

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