



Original Article

The effect of positive parenting program training in mothers of children with attention deficit hyperactivity on reducing children's externalizing behavior problems

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Abstract

Introduction: This study aims to investigate the effect of group positive parenting program training on reducing externalizing behaviors in children with attention deficit hyperactivity (ADHD) in Turkmen families.

Materials and Methods: In this clinical trial in 2013, 22 mothers of children with ADHD from Kalaleh, Golestan Province, were randomly divided into two groups: positive parenting program group during 8 sessions (n=10) and control group (n=12). Data were collected using the parent-report form of the Child Behavior Checklist (CBCL). Data were then analyzed using SPSS 18 by means of ANCOVA, independent t-test, and chi-square tests.

Results: The results showed that in the experimental group, children's externalizing behavior significantly reduced after group positive parenting program training compared to the control group ($P < 0.004$). Positive parenting program produced a modest effect size.

Conclusion: Since positive parenting program training for mothers is effective in reducing children's externalizing behavior, this training program is recommended along with pharmacotherapy to be implemented to reduce behavior problems in children with ADHD.

Keywords: Attention deficit hyperactivity disorder, Externalizing, Positive parenting

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Introduction

Parent-child relationship plays a significant role in children's vulnerability or resilience. In a wider perspective, this relationship is under the influence of children's characteristics (such as gender, temperament, and biological status) and in addition to parental, familial, and environmental characteristics, it predicts child development process (1).

The birth of a child with developmental disorders, or a child whose behavior problems are far higher than expected regarding their developmental stage will disrupt family structure and cause tensions in parental responsibilities. ADHD is a behavior problem that has devastating impacts on parents. Children with ADHD are unable to control their activities

when they should limit them. They are overactive and they constantly move. They cannot be quite or play quietly, and they usually have restless hands and legs. Furthermore, ADHD can affect children's performance in areas such as education, relationship with peers, and development (2).

Various therapeutic approaches are provided due to the multiplicity and diversity of the problems in these children in different physical, psychological, educational, and social areas. Drug therapy, behavioral therapy, and parent training are some of these treatments. However, drug therapy alone cannot be effective in disrupted family functioning and children's behavior problems, and it cannot resolve parental concerns, either. No drug can train children how to compensate for their aggressive and law-breaking behaviors (3). Moreover, attention should be given to training programs due to the following reasons (4): 1) disagreement over using stimulants

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family characteristics, the influence of peers and the in treating ADHD. 2) Failure to assess and detect consistent changes after drug discontinuation. 3) Lack of positive response to stimulants by 20-30% of the children with ADHD. A combination of drug therapy and interventions such as family intervention as well as parent training, which can enhance social behavior and academic activities, are considered a highly effective therapeutic approach (5). Among parenting training programs, positive parenting program is a public health parenting and family support strategy developed by Sanders et al. This program aims to prevent severe developmental, emotional, and behavioral problems in children by increasing the knowledge, abilities, skills, trust, and tact of the parents with 2-13 year-old children (6,7).

Since most of the complaints made by the parents of the children with ADHD are about aggressive and law-breaking behaviors at school and home, and on the other hand, various studies have confirmed that positive parenting program is effective in various cultures and languages, this study has been conducted to assess the effect of training the mothers of children with ADHD in group positive parenting program can reduce externalizing behaviors in such children.

Materials and Methods

The statistical population of this clinical trial includes all mothers of the children with ADHD referring to the psychiatric clinics of Kalaleh in 2013. Using non-probability sampling, 30 individuals (according to their psychiatric records) were selected from these treatment centers. Then they were asked to fill out the Child Behavior Checklist (CBCL). The mothers of 24 children, whose externalizing behavior problem scores in CBCL were in the borderline or clinical range ($T > 60$), were equally divided into two experimental and control groups. In the experimental group, one individual was excluded from the program because of being absent for more than one session, and another individual refused to continue attending the training sessions. Accordingly, the number of individuals in the experimental group was reduced to 10. The experimental group was trained in group positive parenting program for 8 sessions (6 sessions in person and 2 sessions by phone). The mothers of the control group did not receive any training during these 8 sessions, and only their children took the medications prescribed by the psychiatrist. At the end of the training period and after a week, the Child Behavior Checklist was, simultaneously and under the same condition, filled out again as posttest

by both experimental and control groups. The content of the training sessions was adapted from positive parenting program developed by Sanders (2003), which will be briefly discussed in the next sections.

The content of positive parenting program developed by Sanders (1999, 2003):

1st session: Mentioning the rules of teamwork, obtaining commitment and providing therapeutic space, and introducing the five key principals of positive parenting program

2nd session: Encouraging children's favorable behaviors, and learning new behaviors and skills

3rd session: Managing problematic behaviors, developing the principals of positive parenting, and introducing behavioral diagrams

4th session: Planning, guidelines for rescuing families, developing the principles of parenting, planning the activities of daily living

5th session: Assessing family atmosphere and identifying problematic situations in the family

6th session: Managing problematic behaviors, preparation exercises, and training parents for phone sessions

7th session: Addressing the problems raised by parents, encouraging parents to review treatment goals and progresses, and encouraging parents to provide new strategies

8th session: Practicing problem-solving skills to manage children's behavior problems in the future and acknowledging parents' participation in the sessions (6,7).

Research instruments

Child Behavior Checklist: This checklist is based on the Achenbach System of Empirically Based Assessment. This system includes a set of forms for an easy and economic assessment of competencies, action or adaptive functioning, and emotional and behavioral disorders. In the Achenbach System of Empirically Based Assessment, the behavior rating scale is used to obtain information from 3 sources, including parents, teacher, and child. These scales consist of the Child Behavior Checklist (CBCL), the self-assessment questionnaire, and the Teacher's Report Form (TRF) respectively. Achenbach developed these scales based on statistical methods such as factor analysis, and obtained two general factors namely internalizing and externalizing (8). This test is consistent with the Iranian society and it has been standardized to this population. In this study, the questions on the externalizing problems scale of the Child Behavior Checklist have been used to assess externalizing behavior problems. This scale includes two subscales, namely law-breaking

and aggressive behaviors. To estimate the real-time stability of externalizing scale, the correlation coefficient between scores was used, which was obtained 0.97 for the total score, and 0.84 and 0.92 for its subscales (law-breaking and aggressive behaviors) respectively. In the initial sample including 30 individuals, the validity of this scale was measured 0.73 using Cronbach's alpha (9). The data were collected and then analyzed using SPSS 18 by means of ANCOVA, independent t-test, and chi-square tests.

Results

In the intervention group, the mothers ranged in age from 22 to 38, and the mean and standard deviation was 33.2±2.10. In the control group, the mothers ranged in age from 21 to 42, and the mean

and standard deviation was 32.2±2.86. Independent t-test showed no significant difference between the two groups in terms of age ($P=0.57$). In terms of employment, 30% and 70% of the mothers in the intervention group and 41.6% and 58.4% of the mothers in the control group were employed and unemployed respectively. Chi-square test showed no significant difference between the two groups in terms of employment ($P=0.65$).

Moreover, in terms of the level of education, 80% and 20% of the mothers in the intervention group and 83.3% and 16.7% of the mothers in the control group held a high school diploma, lower education, and higher education respectively.

Chi-square test showed no significant difference between the two groups in terms of the level of education ($P=0.82$).

Table 1. The means and standard deviation of pretest and posttest scores of externalizing problems in children with attention deficit hyperactivity syndrome

t	F	Control group				Experimental group				Problems
		Pretest		Posttest		Pretest		Posttest		
		SD	M	SD	M	SD	M	SD	M	
-0.46	3.24	5.67	17.83	4.45	20.25	3.83	12.7	8.13	19	Aggression
-0.63	0.26	3.07	8	3.07	8.17	1.57	5.40	2.54	7.4	Law-breaking
-0.61	1.64	7.19	25.83	5.83	28.42	4.48	18.10	9.52	26.40	Total Score

As seen in table 1, the average externalizing behavior problem score in the experimental group in pretest is 26.40. According to the CBCL's normalized scores in Iran (9), this value is within the range of $T>75$, which shows the clinical level of behavior problems. In the control group, this average is 28.42, which shows that children's externalizing behavior problem is in the clinical range. The average aggressive behavior score in the experimental group in pretest is 19. The T score equivalent is 84, which is in the clinical range. The average law-breaking score in two groups (experimental and control) in pretest was 7.40 and 8.17 respectively, which is in the clinical range.

The average externalizing behavior problem score in the experimental group in posttest is 12.7. In the control group, this average is 25.83, which shows that the subjects' scores in the experimental group have decreased. The average aggressive behavior score in the experimental group (12.7) was lower than in the control groups (17.83). The average law-breaking score in the experimental group (5.40) was also lower than in the control group (8).

Given the values of F and t, it is seen that the average externalizing behavior problem score in the experimental and control groups in pretest is not statistically significant ($p=0.55$). In the subscales of externalizing behavior problems (aggression and law-breaking), this difference is not statistically

significant, either ($p=0.65$ and $p=0.54$ respectively). Therefore, it can be concluded that the study subjects are homogenous before the intervention in terms of externalizing behavior problems and their subscales.

Aimed to assess the effect of positive parenting program training among mothers of children with ADHD and children's externalizing behavior problems, adjusting for the effect of pretest on posttest scores, ANCOVA was used. The results are shown in Table 2.

Table 2. Univariate analysis of covariance for the posttest scores of externalizing behavior problems by positive parenting program training with covariate scores of pretest

Source	df	SS	MS	F	η^2
Pretest	1	93.96	93.96	2.72	0.125
Parenting Program	1	368.87	368.87	10.67*	0.36
Error	19	656.61	34.56		
Total	22	12.35	-		

As seen in table 2, the calculated F for the effect of pretest (2.72) is not statistically significant. In other words, posttest scores are not affected by pretest scores. However, after the means of the two groups were adjusted based on pretest scores, the effect of positive parenting program ($F=10.67$, $P<0.004$) is statistically significant. The means of the two groups (Table 1) show that compared to the control

group, the posttest scores of the subjects in the experimental group have decreased. Therefore, it can be concluded that positive parenting program has reduced externalizing behavior problems.

Eta-squared values also show that about 36% of the variance in externalizing behavior problems is explained through positive parenting program training. Multivariate analysis of covariance (MANCOVA) was used to investigate the effect of positive parenting program on the components of externalizing behavior problems (aggressive behaviors and law-breaking).

Table 3. MANCOVA of posttest scores for the components of externalizing behavior problems by positive parenting program training with covariate scores of pretest

Source	Subscales	df	SS	MS	F	η^2
Pretest						
	Aggression	1	40.615	40.615	1.73	0.084
	Law-breaking	1	11.024	11.024	1.84	0.080
Parenting Program						
	Aggression	1	162.32	162.32	6.92*	0.267
	Law-breaking	1	41.80	41.80	7.00**	0.269
Error						
	Aggression	19	445.15	23.43	-	-
	Law-breaking	19	113.37	5.97	-	-

* $P < 0.016$ ** $P < 0.016$

As seen in table 4, the calculated F for the effect of positive parenting program has been effective in both components of externalizing behavior problems, including law-breaking ($F=7.00$) and aggression ($F=6.92$). According to the mean of the two groups shown in table 1, both components of law-breaking (5.40) and aggression (12.7) had a lower mean in the experimental group than in the control group. Therefore, it can be concluded that positive parenting program has reduced the problems associate with law-breaking and aggression.

Moreover, it is observed that the calculated F for the effect of pretest on the components of externalizing behavior problems (law-breaking and aggression) is not statistically significant. Therefore, it can be concluded that the changes in posttest scores of the experimental group has not been affected by pretest scores. Eta-squared values also show that training the mothers of the children with ADHD in positive parenting program explains 27% of the variance for both law-breaking and aggression.

Discussion

Using ANOVA showed that positive parenting program training could significantly decrease externalizing behavior problems in children with ADHD ($P < 0.004$, $F=10.67$). Therefore, the results

of this study confirm the research hypothesis. Given the mean scores of externalizing behavior problems in the experimental and control groups shown in table 1, this result can be seen. This is due to the fact that children’s mean externalizing behavior problems score in has decreased significantly in posttest. In the control group, however, no significant changes were made in pretest scores.

The results of this study are consistent with the results of the studies by Bodenmann et al. (1), Bor et al. (10), Pisterman et al. (11), Barkley et al. (12), and Ho et al. (13) in which the mothers of the children with ADHD were trained and their children’s behavior problems reduced. Moreover, the results of a study by Fathi (14) and Ghanbari (15) in Iran were similar to the results of this study.

To explain these results, it can be said that Barkley (12) believed that attention deficit hyperactivity disorder is impaired response inhibition; that is, the child is unable to postpone his/her response to stimuli. Positive parenting program training is important because, using methods such as considering unfavorable outcomes for impulsive behaviors (aggression and law-breaking) and favorable outcomes for proper behaviors, it emphasizes the importance of delays in decision-making, which are necessary to perform executive functions of problem solving skills such as thinking and emotion regulation. One of the skills taught in this program is that parents can teach their children response inhibition by determining consistent, predictable outcomes for children’s impulsive behaviors – as they determine positive outcomes for their submissive behaviors (16).

Since the externalizing behavior problems of the children in this study were reported by parents (mothers), the parents’ attitude towards their children’s behavior, communication, and behavior problems is effective in filling out the questionnaire. On the other hand, one of the most important benefits of holding group parent training sessions is changing attitudes. In fact, the participants’ attitudes change because of getting familiar with other mothers of children with ADHD and learning more about ADHD (17). Within group training sessions and by having discussions about their children’s behavior problems, mothers learn that most of these behavior problems are common and similar among all mothers of the children with ADHD. Therefore, such mothers will no longer have the feeling of incompetence and inadequacy in parenting role, and they will perform this role with more self-confidence.

As a result, as parents’ attitude towards the behavioral characteristics of the children with

ADHD changes, parents' perception of their children's abnormal behaviors change and they will accept it better (18). This issue itself can relatively improve parent-child relationship and decrease the problems associated with disobedience and law-breaking.

Another explanation for the effect of positive parenting program on reducing externalizing behavior problems is that one of the characteristics of the people with externalizing behavior problems is their distorted perception of the world around and considering this environment unfair. As an influential cognitive factor, this factor is also involved in their disruptive behavior (19). Positive parenting program teaches how to induce positive self-concept in children with ADHD by training skills of encouragement, allocation of time to children, and increasing children's responsibility. By decreasing cognitive distortion and increasing acceptance in parent-child relationship, these methods have decreased the problems associated with aggression and law-breaking in children.

Concerning the components of externalizing behavior problems such as aggression and law-breaking, the results showed that training the mothers of the children with ADHD in positive parenting program has reduced such problems in these children, which was the effect of the independent variable on law-breaking ($F=21.957$) and aggression ($F=26.073$).

Behaviors such as impulsivity, hyperactivity, and inattention, which are known as attention deficit hyperactivity disorder, often damage parent-child relationships and increase psychological pressure among the parents of the children with such disorders (5). Over time, parents may apply maladaptive and negative parenting strategies to deal with these problems, which may worsen the problems (7). Therefore, training parents is a highly effective strategy in changing parenting styles, and consequently treating and controlling ADHD.

Furthermore, in explaining the effectiveness of training parents in reducing the problems associated with aggression and law-breaking in children with ADHD, it is likely that there is a conflicting and authoritative atmosphere decreasing children's motivation for their parents' orders. Therefore, by reducing children's oppositional behaviors due to behavior management strategies in which favorable and unfavorable outcomes for children's behaviors are determined by the children themselves, training mothers in parenting styles may lead to the development of social skills, which are a criterion for the development of impulse control and attention in children.

According to the behavioral theory by Peterson & Saldana, coercive interactions between parents and children with ADHD are formed as follows: When a parent asks his/her child to do something, the child resists it by, for example, shouting. Then the parent asks again using coercion, begging, or physical confrontation, and the child increases his/her resistance. If the parent gives up before the child accepts the request, the child will be more resistant. After that, the child's resistance will increase and consequently lead to coercive interactions in future. This is considered as a reward for his/her disruptive and aggressive behavior (20).

Such interaction is likely to occur in the families of the children with ADHD because it is unusual that the child will accept and cooperate immediately. Barkley (12) believes that in 21% of the cases, normal children argue with adults during the day, however, this rate is 72% in the children with ADHD (21). In fact, given an obvious characteristic such as impulsive behaviors in the children with ADHD, observing disinhibited and aggressive behaviors by their parents after using an inefficient system of punishment and threat at home will lead to modeling and learning conduct disorder in such children. Positive parenting program along with drug therapy provides parents with appropriate and efficient strategies in dealing with children's behavior problems. By thinking in advance, parents try to control their sudden, arbitrary behaviors when they are angry or frustrated. Therefore, according to the social learning theory, parents will be able to practically transfer controlling negative emotions to themselves, and finally prevent the prevalence of externalizing behavior problems such as aggression and law-breaking. Since positive parenting program is based on social learning principals, parents will learn during training sessions how to have more positive interactions with their children and reduce the amount of negative behaviors and conflicts in the family (22).

Conclusion

According to the findings of this study, Positive Parenting Program training for mothers of children with ADHD is effective in reducing their externalizing behavior. Therefore, this training program is recommended along with pharmacotherapy to be implemented to reduce behavior problems in children with ADHD and to eventually increase child, parental, and family welfare.

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