

Parent Training and Behavior Therapy on Behaviors of Children With Attention Deficit-Hyperactivity Disorder

Mahvash Raghbi¹; Samaneh Fouladi^{1,*}; Nour Mohammad Bakhshani²

¹Department of Psychology, Faculty of Education and Psychology, Sistan and Baluchestan University, Zahedan, IR Iran

²Department of Clinical Psychology, Zahedan University of Medical Sciences and Health Services, Zahedan, IR Iran

*Corresponding author: Samaneh Fouladi, Department of Psychology, Faculty of Education and Psychology, Sistan and Baluchestan University, Zahedan, IR Iran. Tel: +98-5412416143, Fax: +98-5412416143, E-mail: samanehfouladi@gmail.com

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Background: Attention deficit-hyperactivity disorder (ADHD) is a neurobehavioral condition characterized by poor attention, hyperactivity and misbehavior. Parent training and behavioral therapy are psychosocial techniques aimed at training parents to manage and change their children's behavior.

Objectives: This study examined the impact of parent training and behavioral therapy to control ADHD children.

Patients and Methods: This research was a pretest-posttest study, conducted on 61 ADHD children selected randomly among referrals to psychological clinic (Hamdelan) Zahedan, Iran in 2010. Eight sessions of parent training based on the Barkley method and eight sessions of behavioral therapy were held for children's parents. The measurement tool was a researcher made questionnaires, consisting of diagnostic symptoms and features of ADHD based on DSM IV (diagnostic and statistical manual of mental disorders). Data were analyzed using t-test and SPSS software version 17.

Results: Nine girls (14.8%) and 52 boys (85%), 6-14 years old, participated in the study. Mean scores showed that the symptoms reduced after intervention significantly ($P < 0.01$). The results indicated that parent training and behavioral therapy were effective in controlling ADHD children's behaviors.

Conclusions: The results of the present study can greatly benefit ADHD children since behavioral training may have a greater impact, than just the medication therapy on their social life.

Keywords: Behavior Therapy; Attention Deficit-Hyperactivity Disorder; Diagnostic and Statistical Manual of Mental Disorders

1. Background

Hyperactivity is a neurobehavioral condition, with symptoms of extreme restlessness, poor attention and impulse behaviors; a chronic disorder diagnosed by excessive activities, inattentive and impulsive behaviors, which often remains until adulthood. Evaluations indicate that 3% - 7% of children who attend school and nearly 4% of adults are living with this disorder (1, 2). This disorder leads to major damages in friends and family relationships as well as school performance (3, 4). Teachers and parents do not know much about hyperactivity disorder; hence teachers should not reject students with attention deficit hyperactivity disorder (5-7). Parents of ADHD children often experience difficulty in managing their children's misbehavior (8). Although medication therapy is the standard treatment, strong evidence supports that use of stimulant drugs for treating core symptoms in ADHD children has little impact on their improvement. However, behavioral therapy alone has a lesser effect on

symptoms and functions of ADHD children. Nevertheless, combination of medication and behavioral therapy seems to improve children's function (9). Use of medication alone can rarely resolve therapeutic needs in ADHD children. Moreover, Due to temporary therapeutic effects of medications on this disorder, there is now more emphasis on using behavioral therapy methods (10). ADHD therapists believe that feelings and conducts have mutual interactions; in addition, we have to consider symptoms, negative and positive aspects, family, school and community. Symptoms such as hyperactivity, attention deficit and impulsive behaviors respond to drugs, but medications are ineffective in controlling client's problems, thus use of non-medication treatments such as individual and group psychotherapy, behavioral therapy and parent training are required (11).

According to Mulqueen, parental interventions are effective treatments for preschool ADHD children. More-

Implication for health policy/practice/research/medical education:

This study evaluated the effectiveness of parent training and behavioral therapy on the behaviors of attention deficit hyperactivity disorder (ADHD) children. It is clear that behavioral therapy besides drug treatment can help psychologists and parents to manage ADHD children.

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over, parent training and medication management have more effect on ADHD children (12). Zwi et al. point out that parent training has a positive effect on ADHD children's behaviors and may reduce parents' stress and increase their confidence (13). Furthermore, according to Kalantari study combination of behavioral parent training and medication therapy was more effective leading to significant improvement in subjects (14). Kangarlou et al. reported success of parent training in reducing behavioral problems of ADHD children (15). Van den Hoofdakker in his study showed that behavioral parent training would improve routine treatment in ADHD children and particularly reduce behavioral and internalizing problems, but it would not reduce ADHD symptoms or parental stress. Finally, behavioral parent training may reduce drug prescription (16). Studies on parental training claimed their effectiveness on ADHD, but such claims need scientific and controlled studies. Hence current research focused on the effectiveness of parent training and behavioral therapy on behaviors of ADHD children.

2. Objectives

The present study aimed to examine the effect of parent training and behavioral therapy on ADHD children. The current study hypothesis is that symptoms of ADHD children decrease significantly after parent training and behavioral therapy.

3. Patients and Methods

This study was a pretest-posttest study in a group of 61 children diagnosed with ADHD, aged 6 - 14 years, who were referred to the psychological clinic (Hamdelan), Zahedan, Iran in 2010. After the initial diagnostic interview based on Diagnostic and Statistical Manual of Mental Disorders, fourth edition-revised (DSM IV), 61 ADHD children and their parents were selected randomly, provided they wanted to participate in therapeutic sessions. In addition, researchers were granted ethics of commitment permission at the beginning of the sessions. The first pretest was performed before parent training and behavioral therapy sessions, and the second one was immediately after parent training and behavioral therapy sessions. A questionnaire was designed by the researchers including diagnostic symptoms and features of ADHD, based on (DSM IV) which is one of the most reliable methods for assessing ADHD (17). This questionnaire had 71 items asked by a psychologist and replied by parents. Answer choices were "yes" or "no". If a client responded more than 71 checked items on ADHD test, it would indicate ADHD. Moreover, in this pretest, the minimum and maximum grades were 71 and 142 respectively (mean = 106.5). Three children psychiatric specialists confirmed the content validity of the questionnaire. The validity of this test was measured by Alpha (90%). The implemented therapeutic method was a behavioral treatment. Each subject

was put under treatment during 16 sessions; 8 sessions for parent training and 8 sessions for child's behavioral disorders control. Each session lasted one hour, teaching the Barkley method. The detailed content of the sessions is as follows:

3.1. Parent's Training Sessions

- First session: explaining the disorders to parents to make them accept their child's disease,
- Second session: improving child-parents' interactions and examining their interactions,
- Third session: Reinforcing positive behaviors and neglecting negative behaviors,
- Fourth session: examining behaviors and their changes resulting from the third session,
- Fifth session: examining obtained results after finding the most effective reinforcing, to select the best way,
- Sixth session: depriving and time out from fifth session reinforcing,
- Seventh session: extension of child's behavior control to the society in case of its establishment at home,
- Eighth session: concluding and analyzing the child's progress, referring to the file.

Children attended eight sessions so that the researchers could control their behaviors; parents helped them to perform this exercise. Synopses of the sessions are as follows:

3.2. Behavioral Therapy; Ways Used in Controlling Children's Behavior

- Providing some exercises, focusing on accuracy and slowing down of behavior,
 - Providing a behavioral plan for establishing order and disciplinary sitting of children as well as reinforcing actions,
 - Practicing special games for creating the order,
 - Slowing down the speech and tone of voice,
 - Controlling attention deficit disorder and distraction.
- SPSS software version 17 was used for data analysis and descriptive statistics, such as frequency, percentage and t-test.

4. Results

We aimed to study the effect of parent training and behavioral therapy on ADHD children. Sixty-one ADHD children and their parents were selected randomly in this study. The minimum and maximum ages of the subjects were 6 and 14 years, respectively. Each subject and his or her parents were provided with 8 sessions of behavioral therapy and 8 sessions of parent training. T-test was used to compare pretest and posttest results. As seen in Table 1, the average age of subjects was eight years, and most of them were seven years old. Table 2 shows that most subjects were boys. Table 3 presented the age distribution of the subjects. Furthermore, Table 4 showed that the mean

and scattering of ADHD have been decreased in the post-test, indicating the effect of parent training and behavioral therapy to reduce symptoms of ADHD children. Finally, the probability of accepting the null hypothesis was less than 0.05 ($P < 0.001$).

Table 1. Distribution of Mean and Mode's Age of Participants ^a

	Result	Mode
Age	8 ± 2	7

^a Data are presented in Mean ± SD.

Table 2. Frequency of Subjects Based on Gender ^a

	Frequency
Gender	
Male	52 (85.2)
Female	9 (14.8)
Total	61 (100.0)

^a Data are presented in No. (%).

Table 3. Frequency of Subjects Based on Age ^a

Age	Frequency
6	6 (9.8)
7	26 (42.6)
8	7 (11.5)
9	8 (13.1)
10	4 (6.6)
11	3 (4.9)
12	3 (4.9)
13	3 (4.9)
14	1 (1.6)
Total	61 (100.0)

^a Data are presented in No. (%).

Table 4. Comparison of Pretest and Posttest Results Using T-test ($n = 61$) ^a

	Results	P Value
Pre test	119.75 ± 10.92	≤ 0.01
Post test	94.63 ± 14.07	≤ 0.01

^a Data are presented in Mean ± SD.

5. Discussion

This study examined the impact of parent training and behavioral therapy on controlling children with attention deficit/hyperactivity disorder. Symptoms were al-

leviated after the intervention by comparing mean values, and the differences were significant ($P < 0.01$). The outstanding point of this research is that parent training and behavioral therapy are effective on controlling behaviors of children with ADHD disorder. Comparing this study with a similar study performed by Barkly, parent training affects behavior management, educational intervention, and mostly self-efficacy of ADHD children (18). In addition, Herbert in his study entitled "A randomized controlled trial of a parent training and emotion socialization program for families of hyperactive pre-school aged children" assessed the effect of a 14-week parent training and socialization program on 31 selected ADHD pre-school children. His results showed the effectiveness of parent training on reducing ADHD symptoms (19). Motoyama assessed 18 mothers with ADHD children after parent training program; results showed that parental stress was reduced, their self-esteem was increased, and parent-child relationship was improved (20). Adjunctive behavioral parent training is useful for mothers who have parental self-efficacy and for children with or without single-type (16). Strong evidence proves that parent training and cognitive behavioral therapy have useful effect on ADHD symptoms (21-24). Frolich in a study assessed 18 children with ADHD and used six sessions of cognitive behavioral therapy as well as six sessions of parent training; results showed that ADHD symptoms were reduced at home and school (25). A review study performed by Fehlings revealed that cognitive behavior therapy would increase parent's perception about hyperactivity, also would improve children's self-esteem (26). Furthermore, Loren et al. examined 241 parents with ADHD children participated in eight sessions of group therapy; the results showed improvement in parent-child relationship (27).

According to the results of the relevant studies, behavior management skills have an impact on parenting practices. Therefore, it is recommended to teach these skills to parents having children with behavioral problems. Despite the problems of medication therapy, it is accepted as the main treatment in hyperactivity disorders. We can hardly convince parents to accomplish their children's psychotherapy. The results of the current study can be very helpful for hyperactive children since behavioral trainings can affect their social behaviors more than medication alone. As with all studies, this study bears some restrictions. One of the limitations of the current study was irregular attendance of fathers in sessions. Non-cooperation of fathers may harden the effective implementation of principles learned by mothers. Another limitation was personality characteristics of parents and their possible psychiatric disorders presumably affecting this study and its assessment. Moreover, comparing the efficacy of combination treatment with other methods such as bio-feedback techniques and behavioral interventions is recommended.

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Authors' Contribution

All authors equally took part in design, work, statistical analysis and manuscript writing.

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