

Behavioral parent training for ADHD children: a mixed methods study

Hari Wahyu Nugroho¹, Mei Neni Sitaresmi², Indria Laksmi Gamayanti²

Abstract

Background Management of ADHD requires multimodal treatments. Parental participation is one of the most important factors for effective ADHD treatment.

Objective To investigate the effectiveness of behavioral parent training combined with routine clinical care, in reducing ADHD symptoms in children.

Methods Quantitative and qualitative methods were combined in this study. This study was conducted at 3 growth and developmental clinics in Central of Java, on June-July 2016. The quantitative aspect was assessed by comparing ADHD quotient scores at pre- and post-intervention, while the qualitative aspect by intensive parental interviews. Parents of children with ADHD were randomized with block random sampling. In the treatment group, parents received behavioral training for 7 weeks, along with weekly routine clinical care for their children. The control group received only routine clinical care of the children. Six parents in the treatment group were randomly selected for intensive interviews.

Results A total of 67 parents with their children were involved. Both groups' ADHD quotient scores improved post-intervention. The treatment group ADHD quotient score was reduced from 120.53 to 116.41 (effect size Cohen's *d* 0.68). The control group ADHD quotient score was reduced from 121.74 to 119.83 (effect size Cohen's *d* 0.23). Mean difference post-intervention in both group was not significant ($P=0.161$). After behavioral parent training, communication between parents and children increased and parents' capability in directing their children's daily activity increased.

Conclusion Behavioral parent training can not enhancing effectiveness of routine clinical care to reduce ADHD symptoms in children. [Paediatr Indones. 2017;57:145-8; doi: <http://dx.doi.org/10.14238/pi57.3.2017.145-8>].

Keywords: attention deficit/hyperactivity disorder; behavioral parent training

Attention deficit/hyperactivity disorder (ADHD) is the most common neurobehaviour disorder in children, requiring specific treatments. If not properly treated, ADHD may persist through adolescence. Attention deficit/hyperactivity disorder causes functional disorders, such as difficulty in academic achievement or social interaction, adolescent mischievousness, and increased risk of traffic accidents.¹⁻³ Worldwide, the prevalence of ADHD varies from 4% to 57%, with average about 12%, depending on the instruments used for screening or diagnosis. The male and female ratio was reported to be 4:1.⁴ Using the *Skala Penilaian Perilaku Anak Hiperaktif Indonesia* (SPPAHI) for screening, the ADHD incidence in Jakarta was 26.2%.⁵ A Yogyakarta study using the same screening test, showed an ADHD incidence of 21-24%.⁶

From the Department of Child Health, Sebelas Maret University Medical School/Dr. Moewardi General Hospital, Surakarta¹ and Gajah Mada University Medical School/Dr. Sardjito General Hospital, Yogyakarta², Central Java, Indonesia.

Reprint requests to: Hari Wahyu Nugroho, Department of Child Health, Sebelas Maret University Medical School/Dr. Moewardi Hospital. Jl. Kol. Sutarto No 132, Surakarta, Central Java, Indonesia. Telp/Fax: +62271-633348; Email: hariwahyu@staff.uns.ac.id, dr.hariwahyu@gmail.com.

Children with ADHD need multimodal treatments. Parental participation is one of the most important factors for effective ADHD treatment.^{2,3,7} Based on our observations, the common obstacles to effective ADHD treatment are: (1) lack of knowledge - pediatricians, occupational therapists, and parents do not have enough knowledge about ADHD; (2) lack of time - lack of adequate time for parents to consult a doctor; (3) lack of funds - many parents with ADHD children do not have insurance or enough funds to cover the cost of the ADHD treatment programs; (4) lack of parental involvement in the treatment of their child.

The *Agency for Health Care Research and Quality* (AHRQ) reviewed the comprehensive treatment of ADHD in preschool-aged children and suggested that behavioral parent training had good efficacy in reducing ADHD symptoms in children of this age group.⁷ The objective of this study was to investigate the effectiveness of behavioral parent training combined with routine clinical care in reducing ADHD symptoms in children and also to investigate the response from the parents who received training.

Methods

This mixed methods study combined quantitative and qualitative methods. The quantitative aspect was assessed by comparing ADHD quotient scores pre- and post-intervention. The qualitative aspect was assessed by intensive parent interviews. The study was conducted at the Growth and Developmental Clinic of Dr. Zainudin Arif Mental Hospital, Solo, the Growth and Developmental Clinic of Dr. Soejarwadi Mental Hospital, Klaten, and the Rehabilitation Clinic of Dr. Sardjito General Hospital, Yogyakarta, from June to July 2016. Subjects were parents of ADHD children aged 3 to 7 years who were diagnosed with ADHD, based on the diagnostic and statistical manual of mental disorders (DSM) V. Parents who had consulted psychologists or whose children were on ADHD medication were excluded from this study.

The ADHD test by James E. Gilliam was used to measure ADHD quotient.⁸ The ADHD test was done independently by a permitted and licensed practitioner, who was blinded to the identity of the

parent groups. Parents were randomized with block random sampling according to the site, in order to determine group placement. In the treatment group, parents received behavioral training once per week for 7 weeks and weekly routine clinical care for their children. In the control group, children received only the weekly routine clinical care. Behavioral parent training was conducted by the researchers, and was comprised of different training modules each week (**Table 1**). After the intervention, children in both groups underwent repeat testing to measure their ADHD quotient scores. Intensive interviews were performed on 6 parents in the treatment group, comprising two parents from each site who were randomly selected. This study was approved by the Ethics Committee of Gadjah Mada University Medical School.

Table 1. Behavioral parent training modules

Week	Topics
I	What is ADHD?
II	Improving communication
III	Behavior problem or sensory problem?
IV	Understanding the behavior problem and behavioral modification
V	Understanding the sensory problem and play modification
VI	Independent routine activities
VII	Material review

Results

A total of 67 parents with children who had been diagnosed with ADHD participated in this study. Four parents were excluded, because they had received counseling on behavior modification by psychologists (3 subjects), or refused to join the study (1 subject). A total of 19 subjects came from Dr. Zainudin Arif Mental Hospital, Solo (9 subjects in the treatment group); 24 subjects came from RSJD Dr. Soedarwadi Mental Hospital, Klaten (12 subjects in the treatment group); and 24 subjects came from Dr. Sardjito Hospital, Yogyakarta (12 subjects in the treatment group). Subjects' baseline characteristics were similar between groups (**Table 2**).

In the treatment group, the mean ADHD quotient scores were 120.53 pre-intervention and

Table 2. Subject's characteristics

Characteristics	Treatment group (n=33)	Control group (n=34)
Male, n	29	30
Mean age, months	59.6	61.9
Maternal education, n		
Junior high school	7	6
Senior high school	26	28
Paternal education, n		
Junior high school	3	3
Senior high school	30	31
Monthly income, n		
< IDR 1 million	6	5
IDR 1-2 million	25	26
> IDR 2 million	2	3

116.41 post-intervention (effect size Cohen's $d=0.68$). In the control group, the mean ADHD quotient scores were 121.74 pre-intervention and 119.83 post-intervention (effect size Cohen's $d=0.23$) (Table 3). Mean difference of ADHD quotient scores post-intervention was not significant ($P=0.161$).

Six parents in the treatment group (2 parents from each site) underwent intensive interviews. After behavioral parent training, 3 of 6 parents succeeded in giving clear instructions for daily activities, improving communication with their children, and forbidding them to watch television. Two of 6 parents recognized reduced symptoms of hyperactivity in their children (Table 4).

Table 3. Pre- and post-intervention ADHD quotient score

	Pre	Post	Effect size Cohen's d
Treatment group	120.53	116.41	0.68
Control group	121.74	119.83	0.23

Table 4. Intensive parental interviews (6 parents)

Characteristics	n
Giving clear instructions for daily activities	3
Increased communication skill	3
Forbidding their child to watch television	3
Decreased hyperactivity	2
Calmer, not cranky	1
Child completed given tasks	1
Maintained a routine of activities	1
Child participated in sports	1

Discussion

We conducted a combination of qualitative and quantitative methods, in order to assess the effectiveness of behavioral parent training combined with routine pediatric clinical care. Subjects in this study were parents with children aged 3 to 7 years who had been diagnosed with ADHD. The children had not received pharmacological treatment and parents had not received education on behavioral disorders. This was done to avoid pharmacological and educational bias effects on the ADHD quotient scores.

The main result of this study was a decrease in ADHD quotient score from 120.53 at pre-intervention to 116.41 at post-intervention, in the treatment group. But this decline in the ADHD quotient score was not clinically significant, as these scores were in the in the same level of severity category. Van den Hoofdakker *et al.* found that behavioral parent training combined with routine clinical care of children showed better results compared to routine clinical care alone.⁹ Our quantitative method was intensive parental interviews. These interviews revealed that the most common benefits of behavioral parent training were in giving clear instructions for daily activities and increased communication between parents and children. Other studies also showed that behavioral parent training was effective in reducing ADHD symptoms compared to children with ADHD on the waiting list for routine clinical care.^{10,11}

Some limitations of this study were: (1) lack of monitoring parental compliance in implementing the behavior modification program at home, as this issue could not be routinely monitored or clearly documented; (2) researchers could not prevent communication between parents in the study. As such, parents in control group may have also implemented the behavior training at home by using information from parents in the treatment group; (3) the time allocated to evaluate changes in ADHD quotient scores was very short.

In conclusion, behavioral parent training is not enhancing effectiveness of routine clinical care to reduce ADHD symptoms in children.

Conflict of Interest

None declared.

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