



UNIVERSITI PUTRA MALAYSIA

***EFFECTS OF BEHAVIOURAL PARENT TRAINING PROGRAMME
WITH AND WITHOUT TEACHER INTERVENTION ON ATTENTION-
DEFICIT/ HYPERACTIVITY DISORDER (ADHD) SYMPTOMS
AMONG ADHD CHILDREN IN IRAN***

SEPIDEH SHABAN

FPP 2014 55



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By

SEPIDEH SHABAN

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in
Fulfillment of the Requirements for the Degree of Doctor of Philosophy**

December 2014

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Abstract of thesis presented to the senate of Universiti Putra Malaysia in fulfilment of the requirement for the Degree of Doctor of Philosophy

**EFFECTS OF BEHAVIOURAL PARENT TRAINING PROGRAMME
WITH AND WITHOUT TEACHER INTERVENTION ON
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By

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December 2014

Chairperson : Maznah Bt Baba, PhD
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Previous studies have shown that Attention-Deficit/Hyperactivity Disorder (ADHD) among children is a chronic disorder that may adversely affect individuals throughout their lives. Children with ADHD often have problematic parent-child interactions and academic and behavioral problems at school. Studies conducted in Iran between 2009 and 2013 have found that the prevalence rates of ADHD among children have increased. Currently, efforts to reduce ADHD symptoms have focused on parent-training and/or medical interventions. This experimental study was conducted to compare the effects of behavioral parent-training (BPT) combined with teacher intervention and BPT-only on ADHD symptoms among children from counseling centers in Tehran, Iran.

Using a randomized, pre-test, post-test, control group design, 96 boys and girls aged between 9 to 11 years old were randomly assigned into two intervention and one control groups. The two interventions were: (1) Barkley's Behavioral Parent Training Program for parents (BBPT), and (2) BBPT combined with School Intervention for teachers. The Children's Symptom Inventory (CSI4) and Teacher Report Form (TRF) were used to measure outcome variables. Mothers and teachers participated in the intervention programs.

Descriptive and inferential statistics were applied to analyze the data and test hypotheses. Additionally, a semi-structured interview with three parents and three teachers from each experimental group was conducted to gain greater understanding of the results. Overall, Two-way Repeated Measures ANOVA was conducted to study the effects of groups across test.

The results showed that the average mean score for inattention symptoms as measured using CSI4 was significantly different among the three groups, ($F(4,93)=16.786$,

$p=.001$). Similar result was achieved for inattention score as measured using TRF, ($F(4,93)=11.668, p=.001$). The average mean score for hyperactivity-impulsivity measured by CSI4 across time (test) was also significantly different among the three groups, ($F(4,93)=14.738, p=.001$). Similar results were also obtained for the mean score of hyperactivity-impulsivity measured using TRF, ($F(4, 93) = 5.037, p = .001$). Results also show that interaction between groups and test for inattention with hyperactivity-impulsivity score in CSI4 ($F(4, 93) = 19.805, p = .001$) and TRF ($F(4, 93) = 19.805, p = .001$) were significant. Hence, this study found that both interventions, namely, Barkley's Behavioral Parent Training combined with Teacher Intervention and BPT-only were both effective in reducing symptoms of ADHD among Iranian children at home and school settings. The descriptive results of the semi-structured interview presented parents' and teachers' satisfaction from children's behavior after implementing the interventions.

This study tested the effects of parent and teacher training to improve ADHD symptoms among children in Iran. One suggestion for future studies is to provide direct intervention to ADHD children, in addition to parent and teacher involvement in order to achieve more comprehensive outcomes. Inclusion of a qualitative component in future experimental studies may provide deeper understanding of the strengths and weaknesses of interventions.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia
sebagai memenuhi keperluan untuk Ijazah Doktor Falsafah

**KESAN PROGRAM LATIHAN KEIBUBAAPAN BESERTA DAN TANPA
INTERVENSI GURU KE ATAS SIMTOM KECELARUAN KURANG-
PERHATIAN/HIPERAKTIF (ADHD) DALAM KALANGAN
KANAK-KANAK ADHD DI IRAN**

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Kajian lepas menunjukkan bahawa Kecelaruan Perhatian/Hiperaktif (ADHD) dalam kalangan kanak-kanak adalah kecelaruan kronik yang boleh meninggalkan kesan negatif kepada individu sepanjang hayat. Kanak-kanak ADHD biasanya mempunyai masalah interaksi antara ibubapa-anak dan bermasalah akademik serta tingkah laku. Kajian yang dilakukan di Iran antara tahun 2009 hingga 2013 telah mendapati bahawa kadar prevalens ADHD dalam kalangan kanak-kanak telah meningkat. Masakini, usaha untuk mengurangkan simtom ADHD memfokus ke atas latihan keibubapaan dan/atau intervensi perubatan. Kajian eksperimen ini dilaksanakan bertujuan membandingkan kesan latihan keibubapaan beserta intervensi guru atau pihak sekolah berbanding latihan keibubapaan tanpa intervensi pihak sekolah ke atas simtom ADHD dalam kalangan kanak-kanak dari pusat kaunseling di Tehran, Iran.

Dengan menggunakan rekabentuk eksperimen, pra-uji dan pasca-uji beserta kumpulan kawalan, 96 kanak-kanak lelaki dan perempuan berusia antara 9 hingga 11 tahun telah diagihkan kepada dua kumpulan intervensi dan satu kumpulan kawalan secara rawak. Dua intervensi tersebut ialah (1) *Barkley's Behavioral Parent Training Program* untuk ibubapa (BBPT), dan (2) BBPT+TI beserta intervensi pihak sekolah untuk guru. *Children's Symptom Inventory* (CSI4) dan *Teacher Report Form* (TRF) telah digunakan untuk mengukur variabel kajian. Ibu dan Guru melibatkan diri dalam program intervensi.

Statistik deskriptif dan inferensi telah diaplikasi untuk menganalisis data dan menguji hipotesis. Sebagai tambahan, satu temubual berstruktur telah dijalankan dengan tiga dan guru dari setiap kumpulan intervensi untuk lebih memahami keputusan kajian. Analisis ANOVA dua hala telah dijalankan untuk mengkaji kesan intervensi setiap kumpulan.

Hasil kajian menunjukkan bahawa purata skor min bagi simptom kecelaruan perhatian (*inattention*) yang diukur menggunakan CSI4 berbeza secara signifikan bagi tiga kumpulan, ($F(4,93)=16.786, p=.001$). Hasil sama diperolehi bagi simptom kecelaruan perhatian (*inattention*) yang diukur menggunakan TRF, ($F(4,93)=11.668, p=.001$). Purata skor min bagi simptom *hyperactivity/impulsivity* yang diukur dengan CSI4 juga berbeza secara signifikan bagi tiga kumpulan, ($F(4,93)=14.738, p=.001$). Keputusan serupa juga diperolehi bagi purata skor min *hyperactivity/impulsivity* yang diukur dengan TRF, ($F(4,93)=5.037, p=.001$). Keputusan kajian juga menunjukkan kesan interaksi signifikan antara tiga kumpulan bagi skor *inattention with hyperactivity/impulsivity* berdasarkan CSI4, ($F(4,93)=19.805, p=.001$) dan TRF, ($F(4,93)=19.805, p=.001$). Oleh itu kajian ini mendapati bahawa kedua-dua intervensi, iaitu Latihan Keibubapaan dengan intervensi sekolah dan tanpa intervensi sekolah adalah berkesan untuk mengurangkan simptom ADHD kalangan kanak-kanak sama ada di rumah ataupun sekolah. Hasil deskriptif dari temubual separa berstruktur memaparkan kepuasan ibubapa dan guru terhadap perlakuan kanak-kanak setelah pelaksanaan kajian ini.

Kajian ini telah menguji kesan latihan keibubapaan dan guru untuk mengurangkan simptom ADHD dalam kanak-kanak di Iran. Satu cadangan untuk kajian selanjutnya ialah untuk memberi intervensi secara terus kepada kanak-kanak ADHD, sebagai tambahan kepada penglibatan ibubapa dan guru bagi mencapai hasil yang lebih menyeluruh. Penambahan komponen kualitatif dalam kajian eksperimen selanjutnya mungkin dapat memberi kefahaman lebih mendalam mengenai kekuatan dan kelemahan intervensi.

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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Doctor of Philosophy. The members of the Supervisory Committee were as follows:

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LIST OF ABBREVIATIONS

ADHD	Attention Deficit Hyperactivity Disorder
PT	Parent Training
BPT	Behavioural Parent Training
BBPT	Barkley`s Behavioural Parent training
TI	Teacher Intervention
CD	Conduct Disorder
ODD	Oppositional Defiant Disorder
EDA	Exploratory Data Analysis
PMT	Parent Management Training
CBT	Cognitive Behavioural Theory
CBCL	Children Symptom Inventory
TRF	Teacher Report Form
YSR	Youth Self Report
ASEBA	Achenbach System of Empirically based Assessment
ANOVA	Analysis of Variance
NO	Number
DF	Degree of freedom
M	Mean
SD	Standard Deviation
MD	Mean Difference
MS	Mean Square
<i>P</i>	<i>P</i> value

CHAPTER 1

INTRODUCTION

1.1 Overview

This chapter begins with a background of the study, describing the general symptoms of the disorder, its consequences for children and families, its prevalence within and outside of Iran, as well as the various treatments or interventions available. The following aspects of the study are also described in this chapter, namely: the problem statement, objectives of the study, research questions, research hypotheses, significance of the study, conceptual and operational definitions of terms, and limitations of this research. The rationale for the study is discussed in the problem statement section. The chapter ends with a summary to facilitate the reader.

1.2 Background of the Study

According to the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), Attention-Deficit/Hyperactivity Disorder (ADHD) is recognized by two main diagnostic criteria or set of symptoms, namely: (1) inattention, and (2) hyperactivity-impulsivity (APA, 2013). In terms of presentation, children with ADHD may be categorized as either (i) predominantly inattentive (ADHD-I), or (ii) predominantly hyperactive-impulsive (ADHD-H/I), or (iii) of a combined presentation (ADHD-Combined). The combined presentation or type refers to those who present both inattention and hyperactivity-impulsivity set of symptoms. Several of these symptoms must be present before the child is 12 years old and the symptoms are observed in more than one setting. For children of school age, it would be anticipated that these persistent patterns of symptoms can be observed at home and school settings.

According to Barkley (2006), the inattentive and combined subtypes can be recognized amongst elementary school children while the H/I subtype is usually characterized in pre-school aged children. Primary school children with ADHD experience problems at school and home context. Parents and teachers of these children frequently report about under-achievement of ADHD children at school. Some studies proved that 80% of children with ADHD experience lower academic achievement (Huang, Lu, Tsai, Chao, Ho, Chuang, Tsai, & Yang, 2009; Rogers, Wiener, Marton, & Tannock, 2009).

The core symptoms of ADHD are considered as the primary source of teachers' complaints in the classroom. Children with ADHD experience more frequent failure in academic achievement and grade retention as teachers of ADHD children report more inattention, aggression and social problems in school (Frazier, Youngstrom, Glutting, & Watkins, 2007; Rogers, Wiener, Marton, & Tannock, 2009). Thus, as children with ADHD have a problem in learning the academic and interaction skills they may become school dropouts and experience peer rejection and low self-esteem. Most children with ADHD have combined problems, including learning and behavioral difficulties that are contributed to the main symptoms of this disorder (Harpin, 2005).

Academic problems of these children do not only happen in a class setting but also at home. Parents also report high rates of inattention, hyperactivity and impulsive behavior from their ADHD children during task completion. Some researchers have also highlighted the importance of differences between the three various ADHD presentations in their effect on children's performance. For instance, children with inattention and combined symptoms have a lower score in cognitively based performance, such as vigilance and inhibition compared with hyperactive, impulsive subtype (Chhabildas, Pennington, & Willcutt, 2001). Children who present combined symptoms experience difficulty in on-task behavior and quality of work. In fact, they have a problem in the way they should perform to achieve the goal even when they do not have any disability in learning (Barkley, 1997). Children with ADHD have some problems in their communication with their parents. Therefore, they get more negative statements and commands from their parents (Kim & Yoo, 2012). Primary school-age children with ADHD are also found to affect family functioning. Final results of an investigation led by Johnston and Mash (2001) on children with ADHD symptoms found that ADHD children may create disruptions to a family that contributes to increased parental distress.

There are differences between the prevalence rates of ADHD in different countries. The severity of the disorder, methodology of data collection and demographic characteristics of the people, are determinant factors affecting the prevalence rate (Hinshaw, 1994). The prevalence rate of 5-10% have been reported in studies that used moderate DSM criteria and prevalence of 10-20% have been found in studies using behavioral checklists (APA, 2000). According to information in the DSM-5, the prevalence rate of ADHD among children is estimated at 5%, and 2.5% of adults in most countries (APA, 2013).

The prevalence rate of ADHD has also been reportedly different by gender. ADHD is reportedly 3 times more prevalent in males than females, and as estimated, the prevalence of ADHD among males is 3-5 times more than females in a clinical setting while the number of children with this disorder in males is 2 times more than females in the school setting (Barkley, 2006). Recently, Venkata and Panicker (2013) also reported a ratio of 3:1 male children with ADHD compared to females. The prevalence rate of ADHD has also been reportedly different in terms of type of presentation or subtype. As reported by Froehlich et al. (2007) the prevalence rate of children with ADHD combined-type was estimated at 3.3% of boys and 1.0% of girls, while prevalence of the inattentive type was reported to be 5.7% for boys and 3.1% for girls. In terms of age, the primary expression of ADHD at pre-school is hyperactivity while at the elementary school inattention becomes more prominent (APA, 2013).

The prevalence rate of ADHD among children in Iran has been reported in various studies. Hebrani, Abdolahian, Behdani, Vosoogh, and Javanbakht (2007), reported a prevalence rate of ADHD at 18.1% of males and 6.7% of females among pre-school children. Another study reported a range of 7 to 9.1% in the south of Iran (Ghanizadeh, Mohammadi, & Moini, 2008). Ghanizadeh, Fallahi, and Akhondzadeh (2009), also estimated a rate of 10.1% for this disorder in the school setting. In terms of subtypes, a research on school-aged children in Iran revealed a rate of 8.5% identified with ADHD combined-type and a rate of 5.2% with inattention type. A study conducted much

earlier had reported a higher prevalence of 10% in school-age children (Khooshabi & Puretemad, 2002). The most recent prevalence rate of this disorder in Iran was reported by some informants to be between 3-5% (Hooshvar, Behnia, Khooshabi, Mirzayi, & Rahgozar, 2009). A recent investigation in Iran showed that 17.5% of children have behavioral problems, including inattention problem (6.7%), hyperactivity/impulsivity (6%), combined type (5%), conduct disorder (5%) and oppositional behavior (3.6%) (Khanzaadeh, Taher, & Yeganeh, 2013).

1.2.1 Approaches to Treatment of ADHD in Children

Based on empirical literature only two treatments and their combination have been validated and considered as effective short-term treatment models for school-aged children with ADHD, including psychosocial treatments (behavioral or cognitive-behavioral treatments), stimulant medication treatments (mostly methylphenidate), and the combination of both (Kutcher, Aman, Brooks, Buitelaar, Van Daalen, Fegert, ... Huss, 2004). Although stimulant medication are not useful and effective for all central nervous systems, and sometimes go to the negative side effects in children that limit this intervention to be employed for a long time, but yet it has been extended to be more widely used for ADHD children (Findling, 2008). Also, stimulant medication has different effects on children`s problem and core behavior (Jitendra & DuPaul, 2007).

Many clinicians have applied psychosocial interventions which include treatment at different levels, such as individual, family and community levels (Lloyd, Brett, & Wesnes, 2010). Behavior modification has been recognized as one of the psychosocial interventions for ADHD children. These interventions are widely used to treat the ADHD symptoms and their maladaptive behavior (Jitendra et al., 2007).

A wide array of psychosocial studies have been conducted for ADHD children in Iran. Behavioral interventions are recognized as the most prominent strategies that helped parents, teachers and caregivers be able to manage children`s behavior. Some studies illustrated the effectiveness of behavioral interventions on parental stress and behavioral functioning of children with ADHD in Iran (Kordestaani, Raadmanesh, Amiri, & Farhoodi, 2014). In another study conducted with mothers who have ADHD children in Iran, the mothers, were trained by behavioral strategies in their interaction with their children. Results showed improvement in behavioral problems of these children (Moharreri, Shahrivar, & Tehraanidust, 2010)

As stated by Gupta and Kar (2009), children with ADHD have deficits in cognitive components such as difficulties with problem solving and self-regulation and poor ability of adjusting to environmental demands. Cognitive strategies can assist kids to promote their cognition and reduce their main symptoms (Choi & Lee, 2013; Ozcan, 2013). As suggested by Hinshaw, Owens, Sami, and Fargeon (2006), cognitive-based interventions that have an effect on cognitive performance of children with ADHD, should be combined with the behavioral approach to be more effective. In this regard, the research outcome about effect of cognitive behavioral interventions such as problem solving, self-reinforcement derived from these studies revealed significant effects in parental reports of children`s improvement in their activity level (Fehlings,

Roberts, Humphries, & Dawe, 1991). Another investigation approved the effectiveness of cognitive behavioral therapy for ADHD as a life span intervention (Mongia, Errington, Palmer, Dalena, & Hechtman, 2013). There is only limited evidence for certain types of cognitive-behavioral interventions, such as social skills training and problem-solving interventions, which may only show efficacy in the treatment of ADHD when combined with intensive multimodal behavioral treatment packages (Pelham, Wheeler, & Chronis, 1998b).

Studies conducted in Iran have also demonstrated the positive effects of cognitive behavioral intervention on symptoms of ADHD among Iranian children. One study in Iran trained mothers with cognitive behavioral interventions to reduce ADHD symptoms. Results showed reduction in inattention, hyperactivity and impulsivity symptoms after treatment (Rasouli, Omidian, & Sameyi, 2014). Another study investigated the effects of cognitive behavioral techniques on ADHD children's self-esteem. Results indicated increase in participants' self-esteem after treatment program. In this study, the treatment was conducted directly on the ADHD children (Salehi, Pooshneh, & Nazemi, 2011).

Cognitive deficiencies and behavioral problems of children with ADHD at home highlight the essential role of behavioral parent training (BPT) for parents of these children. Parents have a main role in the development and maintenance of the cognitive and behavioral changes in children with ADHD (Kaplan, Thompson, & Searson, 1995; Piffner, Barkley, & DuPaul, 1998). Parent training has been found to help parents manage children's behavior (Alaniz, 2010). This intervention provides the knowledge about the antecedents and consequences of children's performance (Chronis, Chacko, Fabiano, Wymbs, & Pelham, 2004). Parent training strategies are based on social learning principles. According to this theory, the main focus is on the appropriate and inappropriate behaviors. The goal of this theory is to train parents, teachers or caregivers use some appropriate alternatives when faced with the children's acceptable or unacceptable behaviors.

Studies conducted in Iran have found that parent training that are based on the behavioral approach can reduce ADHD symptoms among children with ADHD (Abedi, Tajrishi, Mohammadkhaani, & Farzi, 2012; Zargari nejad & Yekke Yazdandoost, 2007). Another study also showed the effectiveness of BPT in reducing parental distress among parents with ADHD children (Alijani, Rahman, & Ghahari, 2013; Darvishizadeh, Baba, Mokhtar, Jaafar, & Momtaz, 2011).

Despite the success of parent-training programs, children with ADHD have been considered as "hard to manage" in school settings (Barkley, 2000). Due to the importance of the school setting in grooming academic, social and behavioral adjustment of children in general, and especially for ADHD, many researchers have addressed the effect of school-based interventions for these children, such as a Classroom Behavior Modification, Educational Program and School-Based Intervention (Miranda, Jarque, & Tarraga, 2006). Classroom management is an essential ability that teachers should be trained to control children's behavior in the classroom (Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008). The management of

the class consists of three main dimensions, including maximized allocation of time for instruction, arrangement of instructional activities to maximize academic engagement and achievement, and proactive behavior management practices (Sugai & Horner, 2002). Classrooms that are managed with a high level of structure has better academic and learning outcomes. A wide body of research has documented the effects of structured classrooms on diverse aspects of children's performance, such as task involvement, peer interaction and other appropriate behavior patterns (Susman, Huston, & Friedrich, 1980). One of the main results achieved by Northup, Fusilier, Swanson, Huete, Bruce, Freeland, Edwards. (1999) is the necessity of multi-dimensional intervention for ADHD children in the classroom to enhance teacher's skills in applying behavioral contingency techniques. As a result, a combination of home and school intervention can be effective on core symptoms, behavioral and emotional problems of children with ADHD (Piffner et al., 2007).

A few studies that applied teacher intervention for ADHD children have also been conducted in Iran. As mentioned in the previous part, most of the studies in Iran concentrated on parent training as the only psychosocial treatment. A study implemented by Gorji, Seif, Delavar, and Karimi (2009) showed the effects of parent and teacher intervention on symptoms of ADHD children in Iran. This study applied parent training program for both parents and teachers. Results showed improvement in symptoms of ADHD at home and school.

The number of studies in Iran that show the importance of attending to the behavioral problems of ADHD children is increasing. As can be seen from the results of previous studies in Iran, parent training is considered to be the prominent intervention for families of children with ADHD. Although studies outside Iran have shown the importance of home and school collaboration in the treatment of ADHD children, school or teacher intervention received less attention in Iran. Behavioral problems of children with ADHD are not limited to either home or school. Therefore, collaborative home and school interventions need to be considered in the treatment of children with ADHD (Kordestaani, Raadmanesh, Amiri, & Farhoodi, 2014).

1.3 Statement of the Problem

Attention-deficit/hyperactivity disorder is recognized as a major public health concern worldwide (Mautone, Lefler, & Power, 2011). Recently, Venkata and Panicker (2013) reported a prevalence rate of 11.33% in a community-based sample. Also, as reported by Faraone, Sergeant, Gillberg, and Biederman (2003) between one-third to one-half of children referred to counseling centers are diagnosed with ADHD. As reported by Findling (2008) between 37% to 85% of ADHD symptoms in children remain until adolescence or adulthood.

It is a common psychiatric disorder among children across communities, and the DSM-5 described that "A substantial proportion of children with ADHD remain relatively impaired into adulthood" (APA, 2013, p. 62). In Iran, the prevalence of ADHD-combined subtype among school children is reported at 5% (Khanzaadeh et al., 2013). Children diagnosed with ADHD-combined subtype have problems with attention,

following rules, goals and hyperactivity. This subtype also has emotional and social problems that may permanently impact the main domains of their life, such as academic, family and social interactions (Barkley, 2006).

Inattention symptom of ADHD affects a wide range of activities at home and school. Children with inattention symptoms have low participation in academic performance that contribute to more teacher complaints and more troubles in establishing friendship and peer interaction at school. Academic problems, poor time management, low engagement in homework completion and poor cognitive skills in solving problem lead to more learning problems at home and school (Frazier, Youngstrom, Glutting, & Watkins, 2007).

Hyperactivity/impulsivity in children with ADHD leads them to experience difficulty in seating when it is expected and playing quietly. Moreover, these children cannot wait for their turn and they tend to answer questions before the end of the question. All these symptoms cause a range of difficulty for them at home, school and in social communication (Jitendra & DuPaul, 2007).

Parents of children with ADHD usually show more commanding behaviors than reinforcement. Parental disapproval and negative reactions lead to increased children's maladaptive behaviors that highlight the importance of parent training programs. Several researches on the treatment of ADHD children have been conducted in Iran. Some studies that applied parent training in combination with a stimulant medication demonstrated no effectiveness of BPT without medication (Hooshvar et al., 2009; Khooshabi & Roshanbin, 2009). A recent study by Darvish (2012) showed the effectiveness of Barkley's Behavioral Parent Training as a stand-alone treatment for children with ADHD that measures parents' perspectives. However, it is not known whether the ADHD symptoms were also reduced in the school setting since previous studies only measured children's behavioral changes from their parents' perceptions. With regard to the above reasons, there is a dire need to promote the previous findings that demonstrated the positive effects of parent training as a stand-alone treatment for ADHD. Furthermore, another investigation is necessary to compare efficacy of parent training when it is combined with an intervention that will amend the child's functioning both at home and at school. As teachers' involvement have been found to be important in managing children with ADHD, therefore, both parents' and teachers' perspectives need to be considered. Hence, this study aims to compare parent-training as a stand-alone treatment and parent-training combined with teacher intervention as a psychosocial intervention to reduce ADHD symptoms among ADHD children with combined subtypes and who do not use medication.

1.4 Objectives of the Study

The main objective of this study is to determine and compare the effect of Barkley's Behavioral Parent Training (BBPT) with and without teacher intervention (TI) on inattention, hyperactivity-impulsivity symptoms among children with ADHD.

The specific objectives of the study are as follows:

1. To examine the effect of Barkley's Behavioral Parent Training with and without Teacher Intervention on symptoms of inattention among children with ADHD across pre-test, post-test and follow-up.
2. To examine the effect of Barkley's Behavioral Parent Training (BBPT) with and without Teacher Intervention (TI) on symptoms of hyperactivity-impulsivity among children with ADHD across pre-test, post-test and follow-up.
3. To examine the effect of Barkley's Behavioral Parent Training (BBPT) with and without Teacher Intervention (TI) on symptoms of inattention/hyperactivity-impulsivity among children with ADHD across pre-test, post-test and follow-up.

1.5 Research Questions

Based on the above objectives, the present study was conducted to answer the following research questions:

1. Are there significant differences in the mean scores of inattention symptoms between groups that received Barkley's Behavioral Parent Training combined with Teacher Intervention (BBPT + TI), Barkley's Behavioral Parent Training without Teacher Intervention (BBPT-Only), and control group among children with ADHD at pretest, post-test and follow-up?
2. Are there significant differences in the mean scores of hyperactivity-impulsivity symptoms between groups that received Barkley's Behavioral Parent Training combined with Teacher Intervention (BBPT + TI), Barkley's Behavioral Parent Training without Teacher Intervention (BBPT-Only), and control group among children with ADHD at pretest, post-test and follow-up?
3. Are there significant differences in the mean scores of inattention/hyperactivity-impulsivity symptoms between groups that received Barkley's Behavioral Parent Training combined with Teacher Intervention (BBPT + TI), Barkley's Behavioral Parent Training without Teacher Intervention (BBPT-Only), and control group among children with ADHD at pretest, post-test and follow-up?

1.6 Research Hypotheses

Based on the research questions, the following research hypotheses were tested:

H₀₁: There are no significant differences in the mean scores of inattention symptoms between the experimental groups and control group among children with ADHD across pre-test, post-test, and follow-up.

H_{01A}: There are no significant differences in the mean scores of inattention as measured using CSI4 between the experimental and control groups among children with ADHD across pre-test, post-test, and follow-up.

H_{01B}: There are no significant differences in the mean scores of inattention as measured using TRF between the experimental and control groups among children with ADHD across pre-test, post-test, and follow-up.

H₀₂: There are no significant differences in the mean scores of hyperactivity-impulsivity between the experimental and control groups among children with ADHD across pre-test, post-test, and follow-up.

H_{02A}: There are no significant differences in the mean scores of hyperactivity-impulsivity as measured using CSI4, between the experimental and control groups among children with ADHD across pre-test, post-tests, and follow-up.

H_{02B}: There are no significant differences between the mean scores of hyperactivity-impulsivity as measured using TRF between the experimental and control groups among children with ADHD across pre-test, post-tests, and follow-up.

H₀₃: There are no significant differences in the mean scores of inattention/hyperactivity-impulsivity between the experimental and control groups among children with ADHD across pre-test, post-test, and follow-up.

H_{03A}: There are no significant differences in the mean scores of inattention/hyperactivity-impulsivity as measured using CSI4 between the experimental and control groups among children with ADHD across pre-test, post-tests, and follow-up.

H_{03B}: There are no significant differences in the mean scores of inattention/hyperactivity-impulsivity as measured using TRF between the experimental and control groups among children with ADHD across pre-test, post-tests, and follow-up.

1.7 Significance of the Study

Children with ADHD experience wide range of problems in social, academic and family settings. Nowadays, a great number of these children can be seen in school and counseling centers in Iran. Current approaches to treatment apply psychosocial, medication, and a combination of psychosocial and medical interventions for these children. These approaches have been studied in Iran. Although previous findings of parent training demonstrated the effect of behavioral parent training on ADHD children, research findings in Iran showed diverse outcomes regarding parent training for ADHD children. Most of the studies in Iran applied multimodal intervention (a combination of psychosocial and medication) for children.

Schools are important contexts in children`s lives. Based on previous research, ADHD children encounter behavioral and academic problems in school despite their parents being trained to manage them. In this regard, some research findings have shown effectiveness of teacher training on ADHD symptoms among children. To the researcher`s best knowledge, research that combines parent-training with teacher intervention have not been attempted in Iran. Thus, the results of this study might determine if parents and teachers collaboration would be more effective in the management of ADHD children.

Parent training programs assist families to handle the behavioral and emotional problems of ADHD children. Well-equipped parents with management skills can handle their children`s symptoms in public places. The program that is used in this study will help parents to manage the behavioral problems of the children at home, public places, and social settings. Likewise, some behavioral alternatives will be trained to parents for future problems. Intervention for parents can influence family interactions by improving parent-child relationship. Parent training can be applied in schools and clinics by professionals. Parent training helps parents to be aware of probable problems that would happen to these children in the future.

School administrators, teachers and counselors play a major role in handling children`s behavior at school. Hence, school-based program for school personnel can equip them to cope with the behavioral and academic problems of children with ADHD. Teachers have more contact with children at school, therefore they can implement behavioral strategies to enhance the behavioral, academic and social skills of these children. It is noteworthy that teachers in public and mainstream schools in Iran, do not receive any specific training on how to manage ADHD student`s behavior in the classroom.

School-based intervention programs for children with ADHD can also enhance children`s motivation and confidence in academic and social behaviors because they are able to manage their own behaviors. Moreover, children with ADHD can be equipped with self-regulated strategies. Parent and teacher intervention for ADHD children can prevent them from developing pathological problems such as depression and anxiety that these children usually experience in adolescence. Hence, home and school interventions can help children with ADHD to learn how to be self-directed in life.

1.8 Limitations of the study

The aim of this study is to determine the effects of BBPT with and without TI on ADHD symptoms of inattention, hyperactivity and impulsivity among Iranian children. However some factors may limit confidence in the findings of this study. The following is the list of the limitations of this study:

- a. This study only measured parents` and teachers` perceptions toward children`s symptoms without measuring the ADHD children`s point of view.
- b. In this study, only mothers participated instead of both parents.

- c. This study is limited to ADHD children with combined sub-type in the 9-11 years old age range.
- d. Emotional and individual events that participants experienced out of the intervention sessions were not controlled for.
- e. The researcher did not have any control over the information that participants might have received via media such as TV, internet and books.
- f. This study did not involve observing teachers in their study groups.

1.9 Definition of Terms

1.9.1 Attention-Deficit/Hyperactivity Disorder

Conceptual definition

In the DSM-5, ADHD is described as follows:

“The essential feature of attention-deficit/hyperactivity disorder (ADHD) is a persistent pattern of inattention and / or hyperactivity-impulsivity that interfere with functioning or development.” (APA, 2013, p. 61)

The specific diagnostic criteria for ADHD is fully described in Chapter 2 of this thesis. This disorder consists of three subtypes:

- i Predominantly Inattentive subtype: If inattention criterion is met, but hyperactivity/impulsivity criterion is not met for the past 6 months (APA, 2013).
- ii Predominantly Hyperactive/Impulsive subtype: If hyperactive/impulsive criterion is met, but inattention criterion is not met for last 6 months (APA, 2013) American Psychiatric Association (2013).
- iii Combined subtype: If both criteria (inattention and hyperactivity/impulsivity) are met for past 6 month (APA, 2013).

Operational Definition

In this study, ADHD symptoms were measured using the Teacher Report Form (TRF) developed by Achenbach (1991) and the Child Symptom Inventory (CSI-4) developed by Gadow and Sprafkin (1997). These instruments were administered to teachers and parents, respectively.

1.9.2 Behavioral Parent Training

Conceptual definition

Behavioral Parent Training is a program that teach parents how to manage their children`s behavioral problems using principles of social learning theory (Barkley, 1987).

Operational definition

This study applied Barkley's Behavioral Parent Training (BBPT) program comprising ten sessions. Each session was conducted two hours weekly for parents who have school-aged children with ADHD.

1.9.3 Teacher Intervention

Conceptual definition

This intervention is a systematic training program for teachers that is based on behavioral, cognitive-behavioral and instructional management theories (Miranda, Presentacia, & Soriano, 2002).

Operational definition

This study applied the teacher intervention program that was developed by Miranda (2002) consisting of eight sessions. Each session was conducted three hours weekly with mainstream classroom teachers.

1.10 Chapter Summary

This chapter provided an overview of the main aspects and concepts of the study. The definition and characteristics of ADHD among children, the prevalence of the disorder, their symptoms and behavioral problems in the home and school setting, issues in the treatment of ADHD, and the research gap that led to the research questions, objectives and hypotheses were presented and discussed in this chapter. The main goal of this study is to compare the effects of behavioral parent training as a stand-alone intervention and combined with teacher intervention on ADHD symptoms among children in Tehran, Iran.

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