Journal of Posthumanism
2025
Volume: 5, No: 8, pp. 950–964
ISSN: 2634-3576 (Print) | ISSN 2634-3584 (Online)
posthumanism.co.uk

DOI: https://doi.org/10.63332/joph.v5i8.3212

Comparing the Effectiveness of a Behavioral Modification Program for Children with ADHD with and without Parental Involvement in a Psychological Support Program: An Experimental Study

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Abstract

This study examines the effectiveness of a dual-component intervention in managing symptoms of Attention-Deficit/Hyperactivity Disorder (ADHD) in preschool children and their parents. A total of 30 children aged 4 to 6 years, diagnosed with ADHD, and their parents participated in the study, conducted in Amman, Jordan. Participants were randomly assigned to two experimental groups: the first group (n=15) underwent an individual behavior modification program for children, while the second group (n=15) participated in the same program augmented with a parental counseling and training component. The results revealed statistically significant reductions in ADHD symptoms—including hyperactivity, inattention, and impulsivity—in the second group compared to the first. The findings highlight that integrating parental involvement into therapeutic interventions amplifies their effectiveness, promoting better adaptive behaviors, improved social competencies, and enhanced parent-child interactions. This dual-faceted approach underscores the importance of holistic, family-centered strategies in addressing ADHD. Recommendations emphasize early detection, diverse therapeutic methods, and further research exploring variables such as age, gender, and additional mechanisms not covered in this study.

Keywords: *Behavioral Modification Program, Children with ADHD, with and without Parental Involvement, Psychological Support Program.*

Introduction

The seriousness of children being diagnosed with attention deficit hyperactivity disorder (ADHD) is evident in its high prevalence rates compared to other disabilities. Statistics indicate that it is common among children in general, affecting approximately (5 : 1) among males and females. This disorder leads to negative consequences that extend to the academic, social, and psychological aspects for the children and their families. This disorder results in negative effects that extend to the academic, social, and psychological aspects of the child and their family, as its symptoms impact various areas of the individual's academic, social, and professional life.

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The symptoms vary and evolve with age, and ADHD often overlaps with other developmental disorders, especially during childhood. (Hallahan, Kauffman & Pullen, 2022)

Barkley (2015) indicates that there is at least one student with attention deficit hyperactivity disorder (ADHD) in every general education classroom.

Al-Khatib (2019) also pointed out that many researchers consider teachers to be one of the most important sources of information during the initial assessment of attention deficit hyperactivity disorder (ADHD). In addition, teacher's observations and evaluations of a child's performance in academic tasks and social situations are used in making decisions regarding the diagnosis of the disorder and the appropriate intervention.

Barkley (2015) described children with this disorder as experiencing chronic difficulties in attention, hyperactivity, and impulsivity, with these characteristics appearing at an early age and not caused by sensory or language problems, motor or intellectual disabilities, or severe emotional disorders.

According to the American Psychiatric Association (APA, 2022), Attention-Deficit/Hyperactivity Disorder (ADHD) is classified as a neurodevelopmental disorder characterized by a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development. This definition is outlined in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR).

The DSM-5-TR identifies three primary presentations of ADHD, which serve as the core criteria for diagnosis:

- Predominantly Inattentive Presentation (ADHD-I): This type is characterized by symptoms such as difficulty sustaining attention, forgetfulness, and disorganization.
- Predominantly Hyperactive-Impulsive Presentation (ADHD-HI): Individuals with this presentation exhibit excessive fidgeting, restlessness, and impulsivity without significant inattention.
- Combined Presentation (ADHD-C): This type includes a combination of inattentive and hyperactive-impulsive symptoms.

Therapeutic Approaches for Attention Deficit Hyperactivity Disorder (ADHD)

Some studies have adopted a multi-modal treatment model that involves parents, teachers, and specialists collaboratively in designing and implementing a treatment plan for the child. This approach aims to:

- Improve the child's social competence with parents, peers, and siblings
- Reduce undesirable behaviors
- Strengthen the child's self-concept and self-esteem
- Enhance independence across various areas of life

The multi-modal treatment program may include Medication, Behavioral therapy, Parent training programs, and Counseling for both the child with ADHD and their family. (McBurnett & Pfiffner, 2008)

Al-Jubouri (2015) defines behavior modification as "a systematic or planned method for

observing behavior and then working to shape it in a positive manner." Within this framework, a variety of techniques are used, including contracting, overcorrection, reinforcement schedules, differential reinforcement, response cost, time-out, modeling, token rewards, reprimanding, self-monitoring, and shaping.

Based on the above, many parent training programs have been developed, the most important of which are: the Conner Program, which includes 14 group training sessions during which educational information about Attention-Deficit/Hyperactivity Disorder is provided and practical tasks are given to parents; the Forehand & McMahon Program, which is directed at treating behavioral problems in children aged between 2 and 8 years, and is based on social learning theory; and the Barkley Program, which aims to train parents to deal with the behavioral problems of their children who suffer from Attention-Deficit/Hyperactivity Disorder, and the program consists of five basic steps (Sayed Ahmed & Badr, 2004).

Problem Statement

The purpose of this study is to determine the effectiveness of a behavioral training program for preschool children and a counseling program for their parents in reducing the symptoms of Attention-Deficit/Hyperactivity Disorder (ADHD). It is evident from the above that the prevalence rate of this disorder is very high according to existing statistics, and its impact on affected children extends to many aspects of their adaptive, developmental, academic, social, and linguistic lives. Moreover, the effects of ADHD are not limited to early childhood but often persist into adolescence and adulthood.

Early intervention, particularly using behavior modification techniques and educating parents via parental counseling programs, plays a crucial role in mitigating the effects of this disorder.

Al-Smadi et al. (2024) indicates the role of a healthy family climate and positive parenting practices in promoting better mental health among children and in fostering appropriate, positive behaviors. Therefore, the researchers considered examining the potential benefit of combining these two strategies by attempting to determine the effectiveness of a behavioral training program for preschool children and a training program for their parents in reducing the symptoms of Attention-Deficit/Hyperactivity Disorder (ADHD) in children.

Research Questions

The study seeks to answer the following main question:

- Are there differences in behavior between the second experimental group, which received an individual behavior modification program combined with family counseling for the parents, and the first experimental group, which received only the individual behavior modification program?

Study Hypothesis

- There are no statistically significant differences at the significance level ($\alpha \leq 0.05$) between the mean behavior scores of the second experimental group, which received the individual behavior modification program combined with the family counseling program for parents, and the mean behavior scores of the first experimental group, which received only the individual behavior modification program.

Significance of the Study:

The importance of this study lies in its focus on preschool-aged children between 4 and 6 years old—an age group that has not been extensively addressed in previous research on attention deficit hyperactivity disorder (ADHD). This study adopts an early intervention approach, which plays a crucial role in developing children's abilities and meeting their needs during these formative early years.

Banat et al. (2022) emphasize that children tend to imitate their parents' behaviors, replicating them in similar situations, whether positive or negative. Therefore, early intervention with the involvement of parents can have a greater impact by highlighting negative parenting practices and stressing the importance of avoiding and steering clear of them. The significance of this study lies in proposing a direct behavioral therapy program to address children with attention deficit hyperactivity disorder (ADHD), aimed at reducing behaviors associated with the disorder, in conjunction with a family counseling and training program with the same objective. This approach seeks to enhance parental practices with the child suffering from ADHD, promoting their developmental and academic growth.

Definition of Terms

- Attention Deficit Hyperactivity Disorder (ADHD):

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR, 2023) defines attention deficit hyperactivity disorder (ADHD) as a disorder that manifests in early childhood—before the age of seven—and appears across various environments such as school, home, and playground. The symptoms persist for at least six months and cause significant disruption in academic, social, occupational, and psychological functioning. ADHD is not attributable to another developmental disorder, such as autism, nor can it be explained by anxiety disorders, personality disorders, schizophrenia, or emotional disorders (APA, 2023).

Operational Definition of ADHD:

Attention Deficit Hyperactivity Disorder (ADHD) is operationally defined as the score a child receives on a behavioral rating scale for children with ADHD (parent rating).

- Behavior Modification:

Al-Khatib (2019) defines behavior modification as "the science that involves the organized application of methods derived from behavioral laws, in order to bring about substantial and beneficial changes in academic and social behavior. This science includes providing experimental evidence demonstrating the responsibility of the methods used for the changes that occur in behavior."

Operational Definition of Behavior Modification:

Behavior modification is operationally defined as a set of behavioral procedures and activities designed by the researchers as part of a specific training program for children. The program consists of fifteen individual training sessions, each lasting thirty minutes, based on practical applications of behavioral principles to build desired behaviors and reduce undesirable behaviors.

- Family Counseling and Training:

It is a set of programs aimed at training parents to equip them with the essential skills necessary

for modifying inappropriate behaviors in their child within the natural home environment. Additionally, it trains parents on how to modify the home environment to make it more suitable for the child and his/her needs. These programs focus on educating parents about the disorder their child is experiencing, increasing the level of acceptance, reducing feelings of guilt, and improving communication between parents and children (Barkley, 1988; NIMH, 2003).

Operational Definition of Family Counseling and Training:

Family counseling and training is operationally defined as a set of behavioral procedures and activities designed by the researchers as part of a specific training program for the mothers and fathers of children diagnosed with ADHD. The program consists of fifteen individual training sessions, each lasting 30 minutes, to educate them on the symptoms and behavioral problems associated with ADHD and to train the family in using behavior management skills at home to reduce the symptoms of the disorder.

Study Limitations

Human Boundaries: The study was limited to children diagnosed with attention deficit hyperactivity disorder (ADHD) aged between four and six years old, along with their parents. These children were diagnosed by pediatricians, psychiatrists, and neurologists, and were residing in the city of Amman.

Previous Studies

Below, the researchers review studies that have used various behavioral or multi-faceted integrative therapeutic approaches, even if their target age group differs from the one targeted in the current study, to highlight the impact of the therapeutic approach itself. This is due to the limited number of studies in this field, as well as studies that have addressed the topic of training the parents of children with attention deficit hyperactivity disorder (ADHD).

The study by Mabrouk and Wadad (2019) aimed to assess the effectiveness of behavior modification programs through the application of the Adaptive Behavior Scale on a group of children with intellectual disabilities. The results showed a significant improvement in adaptive behavior after the program was implemented.

The study by Sharif (2021) aimed to measure the effectiveness of a cognitive-behavioral family counseling program in reducing challenging behaviors in a sample of children with intellectual disabilities who are trainable. Journal of Educational and Psychological Sciences, Suez University.

The study by Jaber and Sharif (2021) aimed to evaluate the effectiveness of a family counseling program based on cognitive-behavioral methods in reducing defiant behaviors in children with intellectual disabilities who are trainable. The results showed statistically significant differences between the pre-test and post-test in favor of the post-test, indicating the program's effectiveness in improving children's behaviors.

The study by Al-Sayed Mohamed and others (2022) aimed to measure the effectiveness of a family counseling program based on modeling to develop physical safety skills in children with autism spectrum disorder in kindergarten. The results showed statistically significant differences between the pre-test and post-test in favor of the post-test, indicating the program's effectiveness in improving physical safety skills.

The study by Samaha (2023) highlighted the importance of early intervention-based family

counseling as an effective means to improve communication in children with autism spectrum disorder. The results showed that providing support and guidance to families could have a positive impact on the development of social and communication skills in these children.

Abd El-Wahab (2007) subjected 22 mothers of children with ADHD in Kuwait to a group counseling program to study its impact on reducing the effects of this disorder on their children. The results showed a change in how the mothers treated their children, which in turn led to a reduction in the symptoms of ADHD in their children.

Davies & Witte (2006) conducted a case study in a first-grade classroom in the United States, which included four children diagnosed with ADHD. The results of the study showed a noticeable effectiveness of using the previously mentioned behavioral methods in reducing inappropriate verbal behaviors among the four children targeted in the study.

Pelham (2005) conducted a study on a group of 27 American children diagnosed with ADHD, whose ages ranged from 4 to 10 years. The results indicated that both the first group, which received medication, and the second group, which underwent behavioral therapy, showed equivalent behavioral and performance improvements. However, the third group, which received both behavioral and pharmacological treatment simultaneously, required a 67% lower medication dose than the first group to achieve the same outcomes as those observed in both the first and second groups (WebMD, 2006).

Springer (2004) conducted a study involving 51 children aged between 4 and 8.5 years who were exhibiting symptoms of attention deficit hyperactivity disorder (ADHD). The results showed a significant improvement in ADHD symptoms, increased social interaction, and higher levels of self-efficacy among all participating children. Additionally, there was a noted reduction in psychological stress levels among the parents who were part of the second study group.

Byrne, Bawden, Beattie, and DeWolfe (2003) conducted a study in the United States to explore the relationship between attention deficit hyperactivity disorder (ADHD) and physical risk exposure among preschool children diagnosed with the disorder. The results revealed that impulsivity and recklessness, as core symptoms, led over 85% of these children to engage in behaviors that resulted in severe physical injuries—often requiring medical treatment in hospital emergency departments.

Cunningham and Boyle (2002) carried out a study in Britain involving 129 four-year-old children to identify maladaptive behaviors predictive of ADHD. The findings indicated that disrupted relationships with parents at home, peers in preschool, poor social interaction with others, aggressive behaviors, impulsivity, and hyperactivity could collectively serve as early indicators of a potential ADHD diagnosis.

Keshk (2002) conducted a study in Egypt to determine the effectiveness of a behavioral counseling program in reducing hyperactivity among kindergarten children. The program was applied to 14 children in their second kindergarten year (ages 5 to 5.11) diagnosed with ADHD. The results indicated a decrease in ADHD symptoms among the children in the experimental group.

Mathews (2001) aimed to identify preschool children in the United States at risk of developing ADHD through their performance on psychological tests, such as verbal comprehension and selective attention. A sample of 30 children aged between 3 and 4.11 years was assessed. The findings showed that children displaying ADHD symptoms made frequent errors in number

recall and sentence repetition. They also had significant difficulties in comprehension, selective attention control, and exhibited poor visuomotor coordination skills.

Hall (2003) conducted a study to examine the effectiveness of a cognitive-behavioral intervention program for the early reduction of ADHD symptoms. The results, based on pre- and post-testing across three groups, demonstrated notable improvement in ADHD symptoms and social skills among all participating children. For parents, the study noted decreased psychological stress levels and increased competency in managing their children.

Commentary on Previous Studies

After reviewing a set of previous studies related to therapeutic approaches aimed at reducing the symptoms of attention deficit hyperactivity disorder (ADHD), it becomes clear that:

There is therapeutic effectiveness for behavioral modification programs in reducing ADHD symptoms in children, as evidenced by the findings of: Keshk (2002), Davies & Witte (2006), Springer (2004), Salanto (1995), Chattopadhyay & Ghosh (1993), the case study by Barkley (1991), and Pisterman (1989).

There is also therapeutic effectiveness for parent training programs in reducing ADHD symptoms in children, according to the results of: Abdul Wahab (2007), Almeida (1998), Anastopouxe, Shelton, DuPaul, & Guevremont (1998), Franker (1997), Johnson (1994), Beyer (1995), and Barkley (1993).

A number of studies have confirmed the superior effectiveness of multi-faceted therapeutic approaches in reducing ADHD symptoms in children, compared to using a single therapeutic method. This conclusion was supported by the results of: Pelham (2005), Klassen, Miller, Raina, Lee & Olesn (1997), the National Institute of Mental Health (1999), Boyle, Cunninggham, Kim & Schacher (1999), Jensen, Armold & Richters (1999), Horn, Ialongo, Greenberg, Packard & Winberry (1990), and Stage & Quiroz (1997).

Study Methodology

This study adopted the quasi-experimental approach, aiming to test the impact of the independent variables—namely, the individual behavioral modification program, and the individual behavioral modification program for children combined with a parental guidance and training program—on the dependent variable, which is the behavioral effects of attention deficit hyperactivity disorder (ADHD).

Study Participants

The study sample consisted of 30 children diagnosed with attention deficit hyperactivity disorder (ADHD) without any comorbid disorders. These children were between four and six years old, residing in Amman, Hashemite Kingdom of Jordan, and were diagnosed by specialized physicians. After confirming that the participants met the diagnostic criteria for ADHD as outlined in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-V-TR, 2022), they were randomly assigned to two experimental groups as follows:

- First Experimental Group: This group consisted of 15 children who were exposed to an intensive individual behavioral modification program.
- Second Experimental Group: This group also consisted of 15 children, along with their

mothers and fathers. The children received the same individual intensive behavioral modification program, while their parents simultaneously participated in a family counseling and training program.

Study Tools

For the purposes of this study, the following tools were used:

1. Behavior Rating Scale for Children with Attention Deficit Hyperactivity Disorder (Parent Rating):

The scale, which was prepared by the researchers, aims to measure the traits of combined attention deficit hyperactivity disorder, which consists of the dimensions of hyperactivity, inattention, and impulsivity, in a preschool child who suffers from ADHD. The scale consists of 26 items distributed as follows: the hyperactivity dimension is reflected through (12 items), the inattention dimension is reflected through (17 items), and the impulsivity dimension is reflected through (6 items). The responses on the scale items are graded on four levels: Always (3 points), Sometimes (2 points), Rarely (1 point), Never (0 points).

Validity and Reliability Indicators of the Scale

Validity

To establish the content validity of the Behavior Rating Scale for Children with Attention Deficit Hyperactivity Disorder in the preschool stage, the initial version of the scale was presented to seven expert judges specializing in the fields of mental health, psychological counseling, and special education from both Amman Arab University and The University of Jordan. Their opinions were sought to evaluate the relevance and content validity of the items in relation to the purpose for which they were designed. Based on their feedback and suggestions, the necessary modifications were made to the scale.

Discriminant validity of the scale was also established. The results showed that the differences between the highest and lowest quartiles were statistically significant at the (0.01) level. Additionally, the correlation coefficients between each item and the corresponding dimension ranged from (0.513 - 0.812), which are considered appropriate values for the purposes of the current study.

Reliability

The reliability of the Child Behavior Rating Scale for preschool children with attention deficit hyperactivity disorder (ADHD) was assessed by re-administering the instrument to a separate group of (30) children diagnosed with ADHD who were not part of the main study sample. The second administration occurred after a two-week interval. Pearson correlation coefficients were calculated for each dimension at the (0.01) level of statistical significance. The overall reliability coefficient for the entire scale was (0.881), indicating a high level of reliability suitable for the purposes of the current study.

2. Parental Interaction Scale:

The scale, developed by the researchers, aims to identify the parenting style adopted by mothers and fathers in dealing with their child who suffers from attention deficit hyperactivity disorder (ADHD). The scale consists of 26 items distributed across two dimensions: Positive Parenting Style – reflected in 13 items, and Negative Parenting Style – also reflected in 13 items.

Responses are rated on a three-point scale as follows: Always (3 points), Sometimes (2 points), Rarely (1 point).

Validity and Reliability Indicators of the Scale

Validity

To establish the content validity of the Parental Interaction Scale, it was reviewed by seven experts specializing in mental health, psychological counseling, and special education from Amman Arab University and the University of Jordan. The goal was to gather their opinions on the relevance and accuracy of the items in measuring what they were intended to assess. Based on the experts' feedback and suggestions, the necessary modifications were made to the scale.

Reliability

The reliability of the Parental Interaction Scale was assessed using the test-retest method. The scale was administered twice to a group of (30) parents (mothers and fathers) of children diagnosed with ADHD who were not part of the main study sample, with a two-week interval between the two administrations. Pearson correlation coefficients were calculated for each dimension of the scale at a statistical significance level of (0.01). The overall reliability coefficient for the scale was found to be (0.808), which is considered adequate for the purposes of the current study.

3. Training Program

First Training Program (Individual Behavior Modification Program):

For the purposes of this study, the researchers developed a program aimed at modifying behaviors associated with attention deficit hyperactivity disorder (ADHD), to be implemented directly with the participating children by the researcher and the supporting team. The program was grounded in behavioral theory and its practical applications, drawing on literature related to behavior modification, shaping desired behaviors, reinforcement, and punishment.

The program consists of (15) sessions, each lasting forty-five minutes, and was implemented over a period of eight weeks.

To ensure the validity and appropriateness of the program in addressing the core symptoms of ADHD in the preschool stage, the program was presented to a panel of professors in counseling and special education at Amman Arab University and the University of Jordan, as well as to field specialists. Based on their feedback, the researcher made the necessary adjustments to the program. Below is a description of the final version of the program.

Second Training Program (Parental Counseling and Training Program):

For the purposes of this study, the researchers developed a family counseling and training program to complement the first individual behavior modification program. This second program aligns with the same skills addressed in the behavior sessions, aiming to create an integrated approach for managing ADHD symptoms.

The program was developed based on cognitive-behavioral theory through reviewing literature related to family counseling and training, parenting skills, the family’s role in behavior modification programs, the importance of home rules and routines, principles of behavior management at home, and the role of clear family communication in behavior regulation.

It consists of fifteen sessions, each lasting forty-five minutes, and is administered directly after the individual behavior modification session. Parents observe their child's session through a one-way mirror and then participate in the counseling session. The implementation of this program spanned eight weeks.

This study aimed to determine the effectiveness of a behavioral training program for preschool children with attention deficit hyperactivity disorder (ADHD) and a parallel training program for their parents, and to measure the impact of these programs on the children's ADHD symptoms. To calculate the differences between the post-test, mean scores of the first and second experimental groups and the control group on the study instruments, the Mann-Whitney U test was used, as it is suitable for detecting differences between two independent groups when the sample size is small.

To ensure group equivalence before implementing the program, the researcher administered the diagnostic checklist to both the first and second experimental groups, and the Parental Interaction Scale to both the second and first experimental groups. Then, the Mann–Whitney U test was used to determine the significance of differences between the two independent groups, due to the small sample sizes. The following differences were calculated:

The differences between the first experimental group and the second experimental group were calculated in the Child Behavior Rating Checklist for ADHD (Parental Rating) before the implementation of the training program. Table (1) presents the results that were obtained:

Group	N	Mean Score	Mean Rank	Sum of Ranks	U Value	Significance Level	Comment
Experimental Group 1	15	88.20	14.60	219.00	99.00	0.595	Not significant
Experimental Group 2	15	88.73	16.40	246.00			

Table (1)

Mann-Whitney Test for Differences Between the First Experimental Group and the Second Experimental Group in the Child Behavior Rating Checklist for ADHD (Parental Rating) Before Program Implementation (To Check for Group Equivalence)

It is clear from Table (1) that the value of (U) is not statistically significant in the Parent Rating Scale of the behaviors of children with ADHD, which indicates that there are no statistically significant differences between the first experimental group and the second experimental group. Therefore, equivalence between the two groups is established in the diagnostic scale prior to the implementation of the training program.

Verification of the Study Hypothesis

There are no statistically significant differences at the significance level ($\alpha \leq 0.05$) between the mean behavior scores of the second experimental group, which received the individual behavior modification program combined with the parental guidance and training program, and the mean behavior scores of the first experimental group, which received only the individual behavior modification program.

To verify the validity of this hypothesis, the differences between the first and second

experimental groups were calculated based on their performance on the Parent Rating Scale for the Behaviors of Children with ADHD after the implementation of the training program. Table (2) presents the results obtained.

Groups	Number	Mean Score	Mean Rank	Sum of Ranks	U Value	Significance Level	Comment
Experimental Group 1	15	71.00	22.37	335.50	9.50	0.000	Significant at the 0.01 level
Experimental Group 2	15	59.00	8.63	129.50			

Table (2)

Mann–Whitney U Test for the Significance of Differences Between the First Experimental Group and the Second Experimental Group on the Parent Rating Scale for the Behaviors of Children with ADHD After the Implementation of the Program

It is clear from Table (2) that the U value is significant at a level equal to or less than (0.05) on the Parent Rating Scale for the Behaviors of Children with ADHD, indicating the existence of statistically significant differences between the first and second experimental groups, in favor of the second experimental group. This can be attributed to the individual behavior modification program combined with the family counseling and training program.

his indicates that the reduction in ADHD symptoms among the members of the second experimental group, after applying the training program, is greater than the reduction achieved by the members of the first experimental group. Therefore, the hypothesis is rejected:

"There are no significant statistical differences between the mean behaviors of the second experimental group, which received the individual behavior modification program combined with the family counseling program for parents, and the mean behaviors of the first experimental group, which received the individual behavior modification program. The differences are attributed to the individual behavior modification program combined with the family counseling program applied to the second experimental group."

Within the framework of the hypothesis, the results confirmed the existence of statistically significant differences at the level of ($\alpha \leq 0.05$) in behaviors associated with the symptoms of ADHD (hyperactivity, inattention, and impulsivity) among the children in the second experimental group—those who received an individual behavior modification program combined with a family counseling and training program for their parents—and the children who received only the individual behavior modification program, without any parental training. The results favored the second experimental group. This indicates that combining an individual behavior modification program for children with a family counseling and training program for their parents significantly contributed to reducing the core symptoms of ADHD among the children in the second experimental group, compared to their peers in the first experimental group who only received the individual behavior modification program.

The greater reduction in ADHD symptoms among the children in the second experimental group, compared to their peers in the first group, may be attributed to the parents' improved

understanding of their child's abilities and needs due to their participation in the family counseling and training program. Through this program, parents learned how to deal with the symptoms of ADHD with patience and wisdom, how to manage their child's behavior at home, encourage positive behavior, and apply behavior modification techniques consistently. Simultaneously, the children received an individual behavior modification program aimed at reducing undesirable behaviors, increasing the frequency of desired behaviors, and shaping new positive behaviors. This dual intervention reduced the child's resistance to change and promoted the adoption of more positive behaviors, as the consistency in handling the child—both by the specialist and the parents—created a stable support system. As a result, these children showed a greater decrease in ADHD symptoms than those whose parents did not receive any form of training.

Moreover, adopting a holistic view of ADHD symptoms, their underlying causes, and the available treatment approaches—through simultaneous individualized training for both the child and their parents—may be closely related to the results observed in this study. The goal of such an approach is to achieve the best possible developmental outcomes for the child by reducing hyperactivity and impulsivity, and by enhancing attention span and quality. Behavior modification programs help children acquire adaptive alternative behaviors, while parent training programs support and reinforce the progress the child makes at home, in school, and in their broader social environment. This multifaceted therapeutic model, in which both parents and specialists collaborate in designing and implementing the treatment plan, aims to enhance the child's social competence with family and peers, reduce undesirable behaviors, strengthen the child's self-concept and self-esteem, and promote greater independence in various areas of life. As such, this integrative approach proves to be more effective for children with ADHD and their families.

The effectiveness of the implemented programs may also be attributed to the method of applying both the individual behavior modification program for the child and the parental training program. Parents were asked to observe the behavior modification sessions through a one-way mirror from a specially designated room, allowing them to see firsthand how the specialist applied and activated behavior modification techniques—serving as a form of live modeling. The specialist would then link the content of the parental training sessions to the techniques applied during the child's individual sessions. This approach served as a strong motivator and reinforcement for parents to implement the guidance and training they were receiving.

These findings of the present study, within the framework of the effectiveness of multimodal treatment, are consistent with a number of previous studies conducted in the same context, such as the study by Pelham (2005), the study by Hall (2003), the study by Eghbalieh et al. (2000), the review conducted by Klassen et al. (1999), the study by the National Institute of Mental Health (1999), the study by Jensen et al. (1999), and the study by Horn et al. (1990).

In summary, the findings of this study support the effectiveness of using a multimodal treatment approach—employing an individual behavior modification program for preschool children and a parental guidance and training program for their parents—in reducing the core symptoms of Attention-Deficit/Hyperactivity Disorder (ADHD). Nevertheless, it is important to also consider the findings of studies that yielded results differing from those of the current study.

Recommendations:

The results of the current study and the discussion of these findings have shown the impact of

applied training programs in reducing the core symptoms of attention deficit hyperactivity disorder (ADHD). Considering this, the researcher presents the following recommendations and suggestions:

- Early detection: It is necessary to identify children suffering from ADHD at the preschool stage and provide appropriate services to them within the framework of early intervention programs.
- Diversification of therapeutic methods: There is a need to diversify the therapeutic techniques used to reduce the symptoms of ADHD when working with children affected by this disorder.
- Involvement of parents: Parents should be involved in individual and group counseling and training programs, as this has a positive impact on both the parents and the child.
- Future research: Further studies should be conducted on reducing ADHD symptoms using behavior modification techniques combined with parent training programs, exploring additional variables such as age, gender, and other mechanisms not addressed in the current study.
- Multi-faceted approach: Future studies should adopt a multi-dimensional therapeutic approach that includes training for siblings of children with ADHD, within the context of intervention programs.

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