

A Randomized Clinical Interventional Research to Study the Effects of Play Therapy on Reducing Behavioral Problems, Attention Deficit and Hyperactivity in Children

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Abstract

Aim: The aim of the present study was to examine effect of play therapy on ADHD children.

Methods: In the present study by using randomized sampling Department of Pediatrics, for 12 months and the samples were fifth and sixth graders (average age of 11 years) selected based on the inclusion criteria through purposeful sampling. They were randomly divided into experimental and control groups (16 individuals each) and then the experimental group underwent eight 90- min-sessions of play therapy with the cooperation of the school's psychological counseling officials.

Results: The post-test mean score of ADHD symptoms was lower than that of the pre-test. This variable of behavioral problems has also obtained a lower average in the post-test test in different components (anxiety and depression, aggression, social incompatibility, antisocial behaviors, attention deficit disorder). In Kolmogorov-Smirnov test, the significance level of the variables should be more than 0.5 0 to be able to express the normal distribution of the variables, therefore, based on the obtained results the values of the significance level of the variables are more than 0.05, so it was concluded that the variables are in a normal state for the analysis of covariance. Levin's test values are insignificant. In other words, the null hypothesis for the equality of the variances of the two groups was confirmed.

Conclusion: The findings of the present study indicate that educational Play therapy demonstrates efficacy in mitigating behavioral issues and attention deficit and hyperactivity symptoms among children diagnosed with ADHD. This therapeutic approach facilitates socialization skills development, enabling affected children to integrate into society as productive and well-adjusted individuals.

Keywords: Play Therapy, ADHD, Children.

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Introduction

Educators, parents, and mental health professionals have been alerted to the prevalence of attention deficit/hyperactivity disorder. Having a child with a disability in motor skills, attention defect, learning disability, aggression, educational problems, or motor excitation is a basic crisis for parents, peers, and society as a whole. Furthermore, these traits can be detrimental to the child's own cognitive development, emotional maturity, and social-emotional competence. [1] The DSM-TV-R defines ADHD as a cluster of symptoms including inattention, impulsivity, and hyperactivity. The kid will encounter learning and behavioral issues as a direct result of stress brought on by the challenges associated with the perceptual, physical, emotional, and social changes.

This disorder's incidence may be affected by a combination of biological, congenital, and environmental variables. An imbalance of neurotransmitters like dopamine, norepinephrine, and serotonin; heredity; underdevelopment of the reticular activating system; dysfunction of the prefrontal cortex; increased alpha wave activity in the central and frontal regions; decreased beta wave activity in the cerebral cortex; and so, on are all examples of biological factors. Low birth weight, neonatal illnesses, maternal drug and alcohol use, and elevated blood lead levels are all examples of congenital and environmental causes. [2] Since their impulsiveness and hyperactivity were linked to their poor timing, which stemmed from their inability to pay attention and their inability to wait for a larger distance between cars, teaching them to

wait for a larger distance between cars is an important strategy for helping them. [3]

Executive function deficits in working memory are a postulated etiological factor in ADD/ADHD, making this area of pathology a central axis of the disorder's study. [4] The ability to remember things and recall them at a later time is one of the brain's greatest strengths. Because of this inextricable link, memory plays a crucial role in the learning process. [5] One of the cognitive tasks associated to executive functions is working memory, which serves as the brain's major processing hub. It takes use of a collection of mechanisms that make it possible to memorize or decipher information for later use, making it readily accessible. [6] One of the most common types of sports is a movement play. Since, as Shen (2006) notes, children project their inner emotional world during play, play therapy as a child-centered treatment may be useful for children with ADHD; play therapy is used for children aged 3 to 16 who have mental issues or other illnesses. [7]

According to Katanach (2009), a therapist may get insight into a child's world via play since it is a world of action and activity. Toys are the equivalent of words, and games are the language of a youngster. [8] Most kids don't have the language abilities to articulate their worries and concerns. Play therapy is a technique used to assist troubled kids get better, and it demonstrates how kids may learn about themselves and their strengths via the medium of play. This kind of therapy allows the kid, similar to talk therapy for adults, to open up about his or her frustrating emotions and issues via the medium of play. [9] Tasks involving visual-motor integration were found to improve people's skill levels in specific tasks, which in turn helped solve challenges in this area by Seyed Rezaei et al. (2021). [10] Hence the aim of this research was to examine the effect of play therapy on ADHD children.

Materials and Methods

In the present study by using randomized sampling Department of Pediatrics, SKMCH, Muzaffarpur, Bihar, India for 12 months and the samples were fifth and sixth graders (average age of 11 years) selected based on the inclusion criteria through purposeful sampling. They were randomly divided into experimental and control groups (16 individuals each) and then the experimental group underwent eight 90- min-sessions of play therapy with the cooperation of the school's psychological counseling officials.

The content of the 8-session play therapy training was as follows:

The 1st session: People are introduced to each other. In this meeting, in order to create a friendly

relationship and a sense of security, the games suggested by the group are played.

The 2nd session: in the form of role- playing games (similar to theater), people learn desirable social behaviors; they also play their favorite roles and express their dreams and ideas in the form of assumed roles.

The 3rd session: The therapist explains the game process to the child: "we want to play the bell game. I give you some cubes and a clock is set". The child is engaged in an activity (painting or building a tower) for 2 minutes, without looking up and without paying attention to anything else. If the child completes this game, he gets 10 extra tokens. If he performs an activity other than the intended task, one token will be taken from him. After playing the game three times, if he can collect 25 tokens (having only 5 mistakes), he can take a prize from the treasure box.

The 4th session: First, the therapist explains the game to the child. The therapist asks the child to tell him the emotions he can feel and the therapist draws them on a piece of paper (happy, sad, angry, crying and surprised). Then they are arranged on the table and the therapist starts telling the story, and every time one of these feelings is mentioned, the child puts a token on the paper associated with that feeling. After the therapist finishes the story, the child tells a story and tokens are placed on the feelings by the therapist and the child.

The 5th session: Bubble making game; the therapist starts making bubbles in the room, most of the children start popping them when they see the bubble. Then a bubble maker is given to the child and the child starts making bubbles. Then the child is asked to make big bubbles by explaining that big bubbles can be made by taking deep breaths into the chest and abdomen and letting them out slowly. With this action, the therapist explains to the child that when he is angry and anxious, the brain needs more air, but the lungs do not work well at that time. If he breathes deeply, the brain orders the heart to beat more slowly and the lungs to work better; so, deep breaths (like making big bubbles) reduce anger.

The 6th session: Sit and walk in a direct and reverse way; Students should execute the sudden orders of the examiner immediately and in a group; and after learning, they are to do it in reverse. Then, they practice the training of the previous sessions.

The 7th session: People are taught good social behavior by using puppets.

The 8th session: A pantomime game was performed in the group. The students gave different

feedback about the performances. Finally, the post-test and a general summary were presented.

Instruments

a) Rutter's Behavioral Problems Questionnaire (Parent Form):

This test was prepared by Michael Rutter (1967) to distinguish between normal children and children with behavioral problems. The subgroups of the test are aggression, anxiety, depression, antisocial behavior, social incompatibility, and attention deficit hyperactivity disorder. This test has been translated and used in Iran by Mehriar et al. In Mehriar's research (1997), the concurrent reliability of the scale with psychiatric diagnosis regarding the presence of the disorder and its subtypes was significant at the level of

0.001. In Rutter's research (1975) using the split-half method, its reliability was reported to be about 0.89. In Bagheri's research (1993) its retest reliability was found to be 0.87. In Abolghasemi's research (2013), the split-half reliability and Cronbach's alpha coefficients of this questionnaire were reported as 0.83 and 0.91, respectively. The scale consists of 30 statements. In the scoring, each

question is given a minimum of 0 and a maximum of 2 marks.

b) Connor's grading scale:

In order to check the severity of children's symptoms of attention deficit and hyperactivity disorder, the Connors grading scale of parent form was used. The parent form has 48 questions that can be used to evaluate five groups of children's disorders, including learning disabilities, behavioral disorders, psychosomatic problems, hyperactivity, and anxiety. Ten questions are devoted to hyperactivity disorders. This scale is made for the age group of 3 to 17 years old and each question is answered as never, a little, almost a lot, or a lot which are given a score from 0 to 3. Obtaining an average of 1.5 or higher indicates hyperkinetic disorder. Cronbach's alpha reliability of the questionnaire was found to be 0.93. The mean score of the scale was 21.42 with a standard deviation of 16.28. Finally, the collected data was analyzed by SPSS-24 software by the use of descriptive (mean and standard deviation) and inferential statistics (analysis of covariance for hypothesis testing).

Results

Table 1: Pre-test and post-test mean (SD) scores of ADHD symptoms, behavioral problems, and their dimensions in control and experimental groups

Variable name	Name of the component	test	control group (n=16)		experimental group (n=16)	
			Average	standard deviation	Average	standard deviation
Symptoms of attention deficit hyperactivity disorder	Symptoms of ADHD	pre-test	18.02	4.48	18.82	4.96
		post-test	17.43	4.26	12.38	4.26
behavioral problems	Anxiety and depression	pre-test	5.52	1.14	6.26	1.27
		post-test	5.43	0.78	4.52	1.05
	aggression	pre-test	8.02	1.75	7.52	1.45
		post-test	7.53	1.36	3.77	1.36
	Social incompatibility	pre-test	9.27	1.26	8.82	1.03
		post-test	8.52	1.18	4.52	1.09
	Antisocial behaviors	pre-test	9.43	1.45	9.59	1.26
		post-test	9.42	1.38	5.64	0.86
Attention deficit disorder	pre-test	9.46	1.32	10.76	1.46	
	post-test	10.08	1.38	5.85	1.41	

The post-test mean score of ADHD symptoms was lower than that of the pre-test. This variable of behavioral problems has also obtained a lower average in the post-test test in different components (anxiety and depression, aggression, social incompatibility, antisocial behaviors, attention deficit disorder).

Table 2: Kolmogorov-Smirnov test results, checking the normal distribution of the variables of ADHD and Behavioral problems in the post-test

Variables	Test	The significance level
Symptoms of attention deficit hyperactivity disorder	post-test	0.282
Stress and depression	post-test	0.420
aggression	post-test	0.184
Social incompatibility	post-test	0.246
Antisocial behaviors	post-test	0.518
attention deficit disorder	post-test	0.412

In Kolmogorov-Smirnov test, the significance level of the variables should be more than 0.5 0 to be able to express the normal distribution of the variables, therefore, based on the obtained results the values of the significance level of the variables are more than 0.05, so it was concluded that the variables are in a normal state for the analysis of covariance.

Table 3: The results of Levin's test regarding the equality of variances of ADHD symptoms in the two groups

Variable	F	First degree of freedom	Second degree of freedom	The significance level
Symptoms of ADHD	0.582	1	24	0.107

Levin's test values are insignificant. In other words, the null hypothesis for the equality of the variances of the two groups was confirmed and it can be said that in the entire test, the variances of the two groups are equal in the variable of ADHD symptoms.

Table 4: The results of univariate covariance analysis regarding the effect of play therapy on ADHD symptoms

Sources		sum of squares	Degree of freedom	mean square	F	The significance level
post-test	Symptoms of ADHD	386.324	1	382.314	598.316	0.001
group	Symptoms of ADHD	5.255	1	5.255	8.122	0.010

The two groups were significantly different in mean scores of ADHD symptoms in the post-test stage; therefore, it can be concluded that play therapy has been effective in reducing the symptoms of attention deficit and hyperactivity disorder in children.

Table 5: Levin's test of the equality of variances in the post-test

Plan	Variables	F	Degree of freedom 1	Degree of freedom 2	The significance level
Post-test	Stress and depression	0.404	1	22	0.734
	aggression	0.409	1	22	0.532
	Social incompatibility	0.096	1	22	0.766
	Antisocial behaviors	0.316	1	22	0.416
	attention deficit disorder	0.518	1	22	0.236

Levin's test values are insignificant. In other words, the null hypothesis for the equality of the variances of the two groups was confirmed and it can be said that in the entire test, the variances of the two groups in the components of behavioral problems are equal.

Discussion

The most important period of motor development is childhood, and one of the characteristics of motor development is continuous physical, motor, cognitive and emotional growth. Early experiences and learning in this period are very effective for a person in later learning. [11] One of the important disorders in this period is hyperactivity disorder. Hyperactivity disorder is one of the most common neurodevelopmental disorders in children, which continues until puberty and adulthood. [12] Attention deficit hyperactivity disorder (ADHD) is one of the most common childhood disorders. Hyperactivity disorder is one of the most common and damaging disorders of childhood. This disorder, which has a profound effect on the lives of thousands of children and their families, is classified into three forms based on the prevalence of the related defects and problems. It includes the

type of hyperactivity impulsivity without attention deficit, Attention deficit without impulsivity, and the combined type. [13]

The post-test mean score of ADHD symptoms was lower than that of the pre-test. This variable of behavioral problems has also obtained a lower average in the post-test test in different components (anxiety and depression, aggression, social incompatibility, antisocial behaviors, attention deficit disorder). Games provide children with the opportunity to present a picture of their inner world and facilitate the expression of emotions. In Kolmogorov-Smirnov test, the significance level of the variables should be more than 0.5 0 to be able to express the normal distribution of the variables, therefore, based on the obtained results the values of the significance level of the variables are more than 0.05, so it was concluded that the variables are in a normal state for the analysis of covariance. The main function of play therapy is to resolve any conflicts interfering with effective functioning individuals with the environment. Play therapy provides a safe environment for children to gradually express their emotions, tensions, feelings of insecurity and suppressed fears. [14] Moreover,

by playing different types of games individually and collectively with various toys, children gain more awareness about their feelings and thoughts, gain knowledge about their important problems and methods of facing problems, and their conflicts and uncomfortable feelings. They also face the consequences of their behavior and learn to maintain their stable attention during the game and reduce their arousal states.

Levin's test values are insignificant. In other words, the null hypothesis for the equality of the variances of the two groups was confirmed. Usually, children with ADHD have major behavioral problems and face many challenges in social skills. Children's behavioral problems in the early years of life are closely related to the mother's negative behavior and communication and her stress, and in this way, the child's problematic behavior causes a decrease in mother's self-confidence. In fact, children's behavioral problems deeply affect family relationships and actions. Children with ADHD face significant challenges in social functions. Therefore, in explaining the findings regarding the effectiveness of play therapy in the reduction of behavioral problems of preschool children with ADHD, it can be said that play therapy causes children to become more aware of their behaviors and problems and find more appropriate ways to solve problems. Due to the fact that ADHD children are facing problems in controlling and predicting their behaviors and emotional reactions such as anxiety and depression, they need a targeted program focusing on cognition and thinking to help them manage their behaviors. Play therapy based on the cognitive behavioral model, also, led to the reduction of aggression and hyperactivity of the subjects. It can be said that the play therapy program based on cognitive behavioral models, which was implemented in eight sessions, emphasized the child's participation and responsibility in the treatment process.

The two groups were significantly different in mean scores of ADHD symptoms in the post-test stage; therefore, it can be concluded that play therapy has been effective in reducing the symptoms of attention deficit and hyperactivity disorder in children. Levin's test values are insignificant. In other words, the null hypothesis for the equality of the variances of the two groups was confirmed and it can be said that in the entire test, the variances of the two groups in the components of behavioral problems are equal.

Conclusion

The findings of the present study indicate that educational Play therapy demonstrates efficacy in mitigating behavioral issues and attention deficit and hyperactivity symptoms among children diagnosed with ADHD. This therapeutic approach

facilitates socialization skills development, enabling affected children to integrate into society as productive and well-adjusted individuals. In addition, students acquire the ability to make informed judgments, cultivate creative and critical thinking skills, enhance their sense of responsibility, and develop appropriate social conduct with their peers.

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