A survey of the effect play therapy and pharmacotherapy of ADHD children in Iran

Javad Tajar¹ and Farhad Tajar²

¹Department of Psychology, Sahneh Branch, Islamic Azad University, Sahneh, Iran.
²Department of Management, Tehran Branch, Imam Ali University, Tehran, Iran.

ABSTRACT
A child with ADHD, (Attention Deficient Hyperactivity Disorder), can derive great benefits from playing checkers during therapy. The therapist can assess the child’s ability to stay seated, wait his turn, pay attention to detail, sustain that attention, as well as how the child reacts to victory or defeat, (getting what they want or not getting what they want). When starting therapy, to talk about what is bothering him or her. The child is in a strange place, meeting with a therapist who is a stranger. The combination of these two factors can be overwhelming and intimidating to a child. Play therapy can be the best method for building rapport with any child. Play therapy can train a child to take what he learns in counseling and use the acquired skills in other areas of life. A game as simple as checkers can accomplish this. The results obtained from a study done on the children of 4-12 years old with ADHD indicated that game therapy method based on concentration-kinesthetic practices which is a combination of puzzle, riddle, story-telling in the form of feeling expression, game lines table design and application of distance reinforcement in these games, along with medication therapy can be helpful to modify and control behavior afflicted with ADHD, and although medication therapy can have less effects on treatment process, it cannot by itself play successful roles in treatment, modification and control of such behavior in this group of children.

Introduction
Attention deficit hyperactivity disorder (ADHD, similar to hyperkinetic disorder in the ICD-10) is a psychiatric disorder [1][5] of the neuro developmental type [1][4] in there are significant problems of attention, hyperactivity, or acting impulsively that are not appropriate for a person's age.[5] These symptoms must begin by age six to twelve and be present for more than six months for a diagnosis to be made.[6][7] In school-aged individuals the lack of focus may result in poor school performance.

Despite being the most commonly studied and diagnosed psychiatric disorder in children and adolescents, the cause in the majority of cases is unknown. It affects about 6–7% of children when diagnosed via the DSM-IV criteria[8] and 1–2% when diagnosed via the ICD-10 criteria.[9] Rates are similar between countries and depend mostly on how it is diagnosed.[10] ADHD is diagnosed approximately three times more in boys than in girls.[11][12] About 30–50% of people diagnosed in childhood continue to have symptoms into adulthood[13] and between 2–5% of adults have the condition.[1] The condition can be difficult to tell apart from other disorders as well as that of high normal activity[7]

Child Interventions
Nonspecific talk or play therapy in a therapist’s office is not a form of treatment with scientific support for children with ADHD. Instead, child-based treatments for ADHD with a scientific basis basis are those that focus on peer relationships and that typically occur in group settings outside of the therapist’s office. Very often, children with ADHD have serious disturbances in peer relationships, and those problems are very strong predictors of long-term outcomes. Children whose difficulties with peers are overcome will have considerably better long-term outcomes than those whose peer relationships remain problematic.

Thus, intervention for peer relationships is a critical component of treatment for children with ADHD and it is the focus of child-based treatments.

There are five forms of intervention for peer relationships, listed below.
1. Systematic teaching of social skills
   • Cooperation
   • Communication
   • Being positive and friendly
   • Participation
   • Helping/sharing
   • Giving compliments
   • Coping with teasing
2. Social problem solving
   • Evaluating outcome
   • Planning implementation
   • Choosing best solution
   • Brainstorming solutions
   • Choosing best solution
   • Planning implementation
   • Evaluating outcome
3. Teaching other behavioral competencies that other children consider important
   • Sports skills
   • Rules of sports
   • Board game rules
   • Good sportsmanship and good team membership
4. Decreasing undesirable and antisocial behaviors
• Target bossy, intrusive, aggressive, and other disruptive behaviors that children with ADHD exhibit with peers
• Establish reward/ consequence program to reduce these behaviors and to replace with prosocial behaviors taught in social skills training
5. Developing a close friendship
• Develop program to help child with ADHD develop a close friendship with another child
• Work with family and teacher to facilitate the relationship
• May serve an important role in improving long-term outcomes

There are several ways of delivering these interventions to children, ranging from groups in clinic offices to summer camps.

All of the programs utilize a core of procedures, including coaching, use of examples, modeling, role-playing, feedback, rewards and consequences, and practice. Programs differ in their location, format, and intensity. As noted earlier in this fact sheet, these child-directed treatments cannot be used alone—they are called for when a parent is participating in parent training and school personnel are conducting an appropriate school intervention.

The child-based treatment needs to be integrated with the parent and school programs.

What if there are Other Problems in Addition to ADHD?

It has been often stated that even though individual therapy and play therapy are not effective in treating ADHD, they are called for when a child has a concurrent problem, called a comorbid problem, such as depression or anxiety or a "family" problem.

It is important for parents and teachers to understand that this is not accurate. These forms of individual therapy do not have a scientific evidence base for any form of childhood mental health problem, including all of those that co-occur with ADHD. Each of those problems does have a form of behavioral treatment that does have evidence behind it, and it is those ADHD. Each of those problems does have a treatment— not generic talk or play therapy—that are indicated treatments—not generic talk or play therapy—that are indicated when there is a comorbid problem with ADHD. Several of these evidence-based treatments (e.g., for anxiety in children, depression, and substance use in adolescents). In short, there are evidence-based approaches to every type of disorder that may occur at the disorder same time as ADHD, and nonspecific talk therapies are not indicated for any of them.

The diagnosis of ADHD can represent family dysfunction or a poor educational system rather than an individual problem. Some cases may be explained by increasing academic expectations, with a diagnosis being a method for parents in some countries to get extra financial and educational support for their child. The youngest children in a class have been found to be more likely to be diagnosed as having ADHD possibly due to their being developmentally behind their older classmates. Behavior typical of ADHD occur more commonly in children who have experienced violence and emotional abuse.

Per social construction theory it is societies that determine the boundary between normal and abnormal behavior. Members of society: including physicians, parents, and teachers determine which diagnostic criteria are used and, thus, the number of people affected. This leads to the current situation were the DSM-IV arriving at levels of ADHD three to four times higher than those obtained with the ICD 10. Thomas Szasz, a supporter of this theory, has argued that ADHD was "invented and not discovered."

Pathophysiology

Brain structure

Diagram of the human brain

The pathophysiology of ADHD is unclear with there being a number of competing explanations. In children with ADHD there is a general reduction of brain volume, with a proportionally greater decrease in the volume in the left-sided prefrontal cortex. The brain pathways connecting the prefrontal cortex and the striatum also appears to be involved. This suggest that inattention, hyperactivity, and impulsivity may reflect frontal lobe dysfunction, with addition brain regions such as the cerebellum also being implicated. Other brain systems related to attention have also been found to differ between people with and without ADHD.

Neurotransmitters

Previously it was thought that the elevated number of dopamine transporters in people with ADHD was part of the pathophysiology but it appears that the elevated numbers are due to adaptation to exposure to stimulants. People with ADHD may have a low arousal threshold and compensate for this with increased stimuli, which in turn results in disruption of attention and increases hyperactive behavior. The reason for this is due to abnormalities in how the dopamine system responds to stimulation. There may additionally be abnormalities in the adrenergic, serotonergic and cholinergic or nicotinergic pathways. Glutaminergic neurotransmission seems to be also involved.

Executive function

One theory of suggests that the symptoms arise from a difficulty in executive functions. Executive functions refers to a number of mental processes that are required to regulate, control, and manage daily life tasks. Some of these impairments include: problems with organizational skills, time keeping, excessive procrastination, concentration problems, processing speed, regulating emotions, using working memory and short-term memory problems. People usually have decent long-term memory. The criteria for an executive function deficit are met in 30–50% of children and adolescents with ADHD. One study found that 90% of individuals with ADHD were impaired in at least one EF task, compared to 50% for individuals without ADHD. Due to the rates of brain maturation and the increasing demands for executive control as a person gets older ADHD impairments may not fully manifest themselves until adolescence or even early adulthood.

The primary characteristics of ADD/ ADHD

When many people think of attention deficit disorder, they picture an out-of-control kid in constant motion, bouncing off the walls and disrupting everyone around. But this is not the only possible picture. Some children with ADD/ADHD are hyperactive, while others sit quietly—with their attention miles away. Some put too much focus on a task and have trouble shifting it to something else. Others are only mildly inattentive, but overly impulsive.
The three primary characteristics of ADD/ADHD are inattention, hyperactivity, and impulsivity. The signs and symptoms a child with attention deficit disorder has depends on which characteristics predominate. Children with ADD/ADHD may be:

- Inattentive, but not hyperactive or impulsive.
- Hyperactive and impulsive, but able to pay attention.
- Inattentive, hyperactive, and impulsive (the most common form of ADD/ADHD).

Children who only have inattentive symptoms of ADD/ADHD are often overlooked, since they’re not disruptive. However, the symptoms of inattention have consequences: getting in hot water with parents and teachers for not following directions; underperforming in school; or clashing with other kids over not playing by the rules.

**Spotting ADD / ADHD at different ages**

Because we expect very young children to be easily distractible and hyperactive, it’s the impulsive behaviors—the dangerous climb, the blurted insult—that often stand out in preschoolers with ADD/ADHD.

By age four or five, though, most children have learned how to pay attention to others, to sit quietly when instructed to, and to not say everything that pops into their heads. So by the time children reach school age, those with ADD/ADHD stand out in all three behaviors: inattentiveness, hyperactivity, and impulsivity.

**Inattentive signs and symptoms of ADD/ADHD**

It isn’t that children with ADD/ADHD can’t pay attention: when they’re doing things they enjoy or hearing about topics in which they’re interested, they have no trouble focusing and staying on task. But when the task is repetitive or boring, they quickly tune out.

Staying on track is another common problem. Children with ADD/ADHD often bounce from task to task without completing any of them, or skip necessary steps in procedures. Organizing their schoolwork and their time is harder for them than it is for most children.

Kids with ADD/ADHD also have trouble concentrating if there are things going on around them; they usually need a calm, quiet environment in order to stay focused.

**Symptoms of inattention in children:**

- Doesn’t pay attention to details
- Makes careless mistakes
- Has trouble staying focused; is easily distracted
- Appears not to listen when spoken to
- Has difficulty remembering things and following instructions
- Has trouble staying organized, planning ahead, and finishing projects
- Gets bored with a task before it’s completed
- Frequently loses or misplaces homework, books, toys, or other items

The most obvious sign of ADD/ADHD is hyperactivity. While many children are naturally quite active, kids with hyperactive symptoms of attention deficit disorder are always moving. They may try to do several things at once, bouncing around from one activity to the next. Even when forced to sit still which can be very difficult for them their foot is tapping, their leg is shaking, or their fingers are drumming.

- Constantly fidgets and squirms
- Often leaves his or her seat in situations where sitting quietly is expected
- Moves around constantly, often runs or climbs inappropriately

- Talks excessively
- Has difficulty playing quietly or relaxing
- Is always “on the go,” as if driven by a motor
- May have a quick temper or a “short fuse”

The impulsivity of children with ADD/ADHD can cause problems with self-control. Because they censor themselves less than other kids do, they’ll interrupt conversations, invade other people’s space, ask irrelevant questions in class, make tactless observations, and ask overly personal questions.

Instructions like “Be patient” and “Just wait a little while” are twice as hard for children with ADD/ADHD to follow as they are for other youngsters.

Children with impulsive signs and symptoms of ADD/ADHD also tend to be moody and to overreact emotionally. As a result, others may start to view the child as disrespectful, weird, or needy.

- Acts without thinking
- Blurs out answers in class without waiting to be called on or hear the whole question
- Can’t wait for his or her turn in line or in games
- Says the wrong thing at the wrong time
- Often interrupts others
- Intrudes on other people’s conversations or games
- Inability to keep powerful emotions in check, resulting in angry outbursts or temper tantrums
- Guesses, rather than taking time to solve a problem

**Is it really ADD / ADHD?**

Just because a child has symptoms of inattention, impulsivity, or hyperactivity does not mean that he or she has ADD or ADHD. Certain medical conditions, psychological disorders, and stressful life events can cause symptoms that look like ADD / ADHD.

Before an accurate diagnosis of ADD / ADHD can be made, it is important that you see a mental health professional to explore and rule out the following possibilities:

- **Learning disabilities** or problems with reading, writing, motor skills, or language.
- **Major life events** or traumatic experiences (e.g. a recent move, death of a loved one, bullying, divorce).
- **Psychological disorders** including anxiety, depression, and bipolar disorder.
- **Behavioral disorders** such as conduct disorder and oppositional defiant disorder.
- **Medical conditions**, including thyroid problems, neurological conditions, epilepsy, and sleep disorders.

### Table 1. Two-group experimental plan using pre- and post-test in the ADHD children of 4 to 12 years old

<table>
<thead>
<tr>
<th>Groups</th>
<th>number</th>
<th>Medical Therapies</th>
<th>Pre-test</th>
<th>Therapy</th>
<th>After-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental group</td>
<td>10</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Control group</td>
<td>10</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

In this experiment which was done experimentally, 20 over-active male children of 4 to 12 years old who for a period of 6 months were treated by medication (stimulators) and combinations of Ritalin (2-5 mg twice in a day) and three-loop medications, using WURS, which their pre-test and post-test scores showed that, in this scale, they have a moderately high depression in terms of 60-item variables of the test. However, they had a very high rate of some variables such as agitation and restlessness and attention issues and inaccuracy. After sorting out, they were divided randomly into two groups. For the test...
group, 6 concentration-kinesthetic plays (a combination of riddles, puzzle, storytelling in the form of the reflection of the emotions, game lines table), which each one was performed for 12 weeks in a combined form for the test group was done in a group way and role exchange manner. The variable distance reinforcement program was done as a behavior therapy technique, and the control group continued their treatment by medication therapy (using the stimulating combinations of Ritalin and three-loop medications) and this group did not receive independent variable (6 concentration-kinesthetic games), and following 12 weeks the post-test was re-done using measurement scale and WURS.

The practiced plays (games): a combination of riddle, puzzle, story-telling, and storytelling in the form of feeling reflections, game lines tables to enhance their attention and to strength motor-mental skills and attention.

Table 2. The statistical analysis of the results for the test group ADHD using WURS measurement scale

<table>
<thead>
<tr>
<th>Pre-test</th>
<th>After-test</th>
<th>D</th>
<th>(D^2)</th>
<th>t</th>
<th>(\alpha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>120</td>
<td>68</td>
<td>52</td>
<td>2704</td>
<td>3/66</td>
<td>0.05</td>
</tr>
<tr>
<td>110</td>
<td>72</td>
<td>38</td>
<td>1444</td>
<td></td>
<td></td>
</tr>
<tr>
<td>117</td>
<td>53</td>
<td>64</td>
<td>4096</td>
<td></td>
<td></td>
</tr>
<tr>
<td>135</td>
<td>79</td>
<td>56</td>
<td>3136</td>
<td></td>
<td></td>
</tr>
<tr>
<td>162</td>
<td>68</td>
<td>94</td>
<td>8836</td>
<td></td>
<td></td>
</tr>
<tr>
<td>111</td>
<td>72</td>
<td>39</td>
<td>1521</td>
<td></td>
<td></td>
</tr>
<tr>
<td>170</td>
<td>69</td>
<td>101</td>
<td>10201</td>
<td></td>
<td></td>
</tr>
<tr>
<td>172</td>
<td>70</td>
<td>42</td>
<td>1764</td>
<td></td>
<td></td>
</tr>
<tr>
<td>118</td>
<td>42</td>
<td>76</td>
<td>5776</td>
<td></td>
<td></td>
</tr>
<tr>
<td>141</td>
<td>98</td>
<td>43</td>
<td>1849</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(\Sigma D^2=603, \Sigma d^2=60/5, \Sigma D^2=32146\)

Considering \(t=3.6\) and at the level \(x=0.05\) and critical \(t=2.22\) the hypothesis zero (H0) is rejected and it could be concluded that there is a significant difference between the pre- and post-test scores of the test group of ADHD children. Therefore, by 95% confidence coefficient, it must be said that game (play) therapy (attention-kinesthetic) along with medication therapy is beneficial to modify and control the behavior of such children.

Table 3. The statistical analysis of the result for the control group of ADHD children using WURS measurement scale

<table>
<thead>
<tr>
<th>Pre-test</th>
<th>After-test</th>
<th>D</th>
<th>(D^2)</th>
<th>t</th>
<th>(\alpha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>117</td>
<td>113</td>
<td>4</td>
<td>16</td>
<td>3/66</td>
<td>0.05</td>
</tr>
<tr>
<td>125</td>
<td>120</td>
<td>5</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>116</td>
<td>117</td>
<td>-1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>133</td>
<td>129</td>
<td>4</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>143</td>
<td>149</td>
<td>5</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>110</td>
<td>108</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>168</td>
<td>163</td>
<td>5</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>96</td>
<td>-4</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>114</td>
<td>112</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>138</td>
<td>132</td>
<td>6</td>
<td>36</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(\Sigma D^2=28, \Sigma d^2=2/8, \Sigma D^2=168\)

Considering \(t=1.42\) and at the level \(x=0.05\) and critical \(t=2.22\) the hypothesis zero (H0) is confirmed and it could be concluded that there is not a significant difference between the pre- and post-test scores of the control group of ADHD children. Therefore, by 95% confidence coefficient, it must be said that game (play) therapy (attention-kinesthetic) along with medication therapy cannot by itself act as a beneficial factor to modify and control the behavior of ADHD children.

Results

The results obtained from a study done on the children of 4-12 years old with ADHD indicated that game therapy method based on concentration-kinesthetic practices which is a combination of puzzle, riddle, story-telling in the form of feeling expression, game lines table design and application of distance reinforcement in these games, along with medication therapy can be helpful to modify and control behavior afflicted with ADHD, and although medication therapy can have less effects on treatment process, it cannot by itself play useful roles in treatment, modification and control of such behavior in this group of children.

Reference


2. ^a^ Lange, Klaus W.; Reichl, Susanne; Lange, Katharina M.; Tucha, Lara; Tucha, Oliver (December 2010). "The history of attention deficit hyperactivity disorder". *ADHD Attention Deficit and Hyperactivity Disorders* 2 (4): 241–255. doi:10.1007/s12402-010-0045-8. PMC 3009097. PMID 21258430.


