KMAN PUBLISHING INSTITUTE
Journal Website

Article history:
Received 20 March 2024
Revised 02 June 2024
Accepted 11 June 2024
Published online 25 June 2024

KMAN Counseling & Psychology Nexus

Volume 2, Issue 1, pp 143-152

E-ISSN: 3041-9026

Meta-Analysis of the Effectiveness of Various Play Therapies on Aggression in Children with Attention Deficit/Hyperactivity Disorder

Azam. Baktashian[1], Mansure. Shahriari[2*], Masoud. Ghasemi[2]

[1] PhD Student, Department of Psychology and Exceptional Children, Central Tehran Branch, Islamic Azad University, Tehran, Iran
[2] Assistant Professor, Department of Psychology, Central Tehran Branch, Islamic Azad University, Tehran, Iran

*** Corresponding author email address**: mansure_shahriari@yahoo.com

A r t i c l e I n f o

Article type:
Original Research

How to cite this article:
Baktashian, A., Shahriari, M., & Ghasemi, M. (2024). Meta-Analysis of the Effectiveness of Various Play Therapies on Aggression in Children with Attention Deficit/Hyperactivity Disorder. *KMAN Conseling and Psychology Nexus*, *2*(1), 143-152.
http://doi.org/10.61838/kman.psynexus.2.1.20

A B S T R A C T

The aim of this study was to conduct a meta-analysis on the effectiveness of various play therapies on aggression in children with Attention Deficit/Hyperactivity Disorder (ADHD). This research utilized a meta-analytic method due to the nature of the study. The research population consisted of articles and studies conducted in this field. Keywords such as "Attention Deficit Disorder," "Hyperactivity," "Aggression," "Behavioral Symptoms," and "Play Therapy" were searched in various databases. A theoretical sampling method was used for selecting the studies. To search for Iranian research, only Persian sources and studies conducted in Iran were considered. These studies, published in scientific-research journals in the last ten years (2012–2022), focused on different types of play therapy for aggression in children with ADHD. The selected studies had appropriate sample sizes and met methodological criteria (such as hypothesis formulation, research method, sample population, sample size, sampling method, measurement tools, statistical hypotheses, statistical analysis method, and correct statistical calculations). The sample was a subset of the population that was chosen based on a pre-determined method. In the second phase of the research, for internal validation, the population included all specialists and experts in the field of play therapy for children with ADHD. The sample size in this phase consisted of four experts, and the sampling method was purposive. A content analysis checklist was used in this research. The results indicated that regarding the causal impact of play therapy on aggression in children, all effect sizes were extracted, ranked based on Cohen's index, and to confirm significance, two statistical significance indicators, p-value and t-value, were reported. For all these components, both indicators showed values below 0.05 ($p < 0.05$) and above 1.96, indicating statistical significance. Therefore, this therapeutic program can be used to reduce aggression in these children.

Keywords: *Play therapy, aggression, Attention Deficit/Hyperactivity Disorder (ADHD).*

1. Introduction

Attention Deficit/Hyperactivity Disorder (ADHD) is a common and disruptive psychiatric disorder that affects 7.2% of children worldwide. It is characterized by a persistent pattern of inattention, impulsivity, and hyperactivity, which manifests in impulsive behavior and an inability to delay gratification. Children with ADHD are often prone to various accidents (Fabiano et al., 2015). Individuals with ADHD exhibit deficits in most executive function components (Seery et al., 2024), and impaired inhibition control is a prominent feature of those with ADHD (Veronesi et al., 2024; Wong et al., 2023). The central role of inhibition control in disrupted executive functions is embedded in cognitive control theories of this disorder, affecting all mental activities, including perception, attention, memory, thinking, and action (Amiri Morchegani & Lehrabi, 2020; Wong et al., 2023). According to Barkley's theory, inhibition control is the core disruption in processing functions within executive functions (Asghari Nekah & Abedi, 2014), and is considered a central neurocognitive process in ADHD (Fajnerova et al., 2020; Tajari et al., 2023). Inhibition control processes are activated during task-switching and are related to the control of interference, supported by the neural networks of the bilateral frontal cortex, upper temporal and lower left occipital structures, right thalamus, and midbrain anatomy (Glenn, 2024). Children with ADHD have inappropriate levels of inattention, impulsivity, and hyperactivity, and also struggle with cognitive functions such as selective attention and sustained attention (Haugan et al., 2022; Nazarova et al., 2022). These children face difficulties in continuous performance tasks and motor inhibition, often paying attention to irrelevant stimuli and neglecting relevant stimuli that require attention, and they lack the ability to maintain attention over a specified period (Feyzollahi et al., 2019; Geurts et al., 2021). Hyperactivity is a predictor of various degrees of impairment in academic, cognitive, social, and developmental performance, creating numerous challenges for individuals with the disorder, and affecting their academic, social, and emotional development (Sibley et al., 2023). Behavioral issues and emotional instability in children with ADHD contribute to increased stress and anxiety among family members (Nimo et al., 2020). One of the behavioral features of these children is an increase in aggressive tendencies. Aggression, as a type of anger, is one of the most significant problems for hyperactive children in establishing relationships with others. The negative consequences of aggression for children and adolescents include peer rejection, academic decline, substance use, and delinquency (Najafi & Sarpolaki, 2016; Thabet et al., 2020). Moreover, victims of aggression experience outcomes such as high levels of insecurity, low self-esteem, anxiety, depression, loneliness, unhappiness, and other issues. Additionally, aggression and destructive behaviors can lead to behavioral and emotional problems, such as oppositional defiant disorder and conduct disorder, as well as academic failures (Akbari & Rahmati, 2015; Najafi & Sarpolaki, 2016; Stewart, 2019). The susceptibility of these children to other behavioral and emotional disorders, including antisocial personality disorder, substance abuse, and alcoholism, emphasizes the need for timely intervention and treatment. Undoubtedly, early diagnosis of this disorder and corrective and preventive actions are the best and most effective ways to prevent many behavioral disorders in these children and students. Children with ADHD have difficulty controlling behaviors and attention, which affects their academic and social performance, and the symptoms of the disorder often persist into adulthood (Ashouri & Dalalzadeh Beigi, 2018; Ashouri et al., 2019).

Various therapeutic methods, including medication, parent training/counseling, functional behavior analysis, behavior therapy, and cognitive-behavioral therapy, have been proposed (Drewes, 2009; Drewes, 2019). Among these, one effective approach to reducing the symptoms of ADHD is play therapy, which is an essential tool for mental health professionals working with children (Nursanaa & Ady, 2020; Obiweluozo et al., 2021). Play therapy is a method in which natural expression tools for children, such as play, are used as a therapeutic approach, helping children manage their pressures and emotions (Obiweluozo et al., 2021; Post et al., 2019; Robinson et al., 2017). Play therapy emphasizes the child's participation in treatment, focusing on self-control, control over others, responsibility for behavior change, and the acquisition of social skills (Ashouri & Abedi, 2020; Ashouri & Dalalzadeh Beigi, 2018; Ashouri et al., 2019). In play therapy, methods such as self-monitoring and dependency management techniques, including positive reinforcement, shaping, extinction, and modeling, are used to improve social and adaptive skills (Rozeh & Ahmadi, 2015; Thabet et al., 2020; Wong et al., 2023). Play therapy involves the regular use of a theoretical model to create an interpersonal process where trained therapists use the therapeutic power of play to assist clients in preventing or solving psychosocial problems and achieving optimal growth and development (Cochran et al., 2022; Drewes,

KMAN-CPN KMAN-Counseling & Psychology Nexus
E-ISSN: 3041-9026

2019). Play therapy provides an opportunity for children to express and explore their thoughts, feelings, and reactions safely within the therapeutic relationship, promoting the development of social competencies, emotional resilience, creativity, problem-solving skills, and enhancing both mental and physical well-being (Horton et al., 2024).

Given the inconsistencies in the results of research regarding the effectiveness of different types of play therapy (Rozeh & Ahmadi, 2015), conducting a meta-analysis would help clarify the actual impact of these treatments on aggression in children with ADHD. The effectiveness of each therapy will be specified. Additionally, considering that various studies on ADHD have been conducted in different regions and age groups, and recognizing that ADHD is prevalent among children globally, there is a need to understand effective intervention programs worldwide. Therefore, it is essential to gather the results of these interventions and assess their effectiveness on a larger scale. Although play therapy-based interventions have had a positive impact on reducing children's behavioral problems, the degree of their impact has been reported as ranging from low to high. It seems that a meta-analysis would clarify the actual effectiveness of play therapy interventions in improving children with ADHD. In other words, conducting a meta-analysis will provide a broader perspective on the effectiveness of play therapy interventions in improving aggression in children with ADHD in the country. This study, using the meta-analysis method, aims to answer the question: Is play therapy effective in reducing aggression in children with ADHD based on meta-analysis?

2. Methods and Materials

Since this study relies on secondary sources and requires the search, identification, selection, and integration of studies, a systematic approach, such as a systematic review, was employed to identify, classify, and summarize the underlying categories of the research under study. Using statistical methods in meta-analysis, the effects of related studies were estimated. Additionally, content analysis was employed in this research.

The statistical population included articles and studies conducted in this field. "Attention Deficit/Hyperactivity Disorder," "Aggression," and "Play Therapy" were chosen as search keywords. Sampling from this population was conducted using theoretical sampling. Theoretical sampling involves the researcher adopting an open and flexible approach to sampling. For Iranian studies, only Persian sources and research conducted in Iran were examined. These studies, published in scientific-research journals over the past ten years (2012–2022), focused on various types of play therapy on aggression in children with ADHD. Selected studies had appropriate sample sizes and met methodological criteria, including hypothesis formulation, research methods, statistical population, sample size and sampling method, measurement tools, statistical hypotheses, statistical analysis methods, and accurate statistical calculations.

The sample represented a subset of the statistical population selected using a predetermined method. The inclusion criteria were as follows: the study topic must focus on play therapy and ADHD; the research must involve a group-based study design; the studies must use a quasi-experimental methodology; valid tools and reliable scales with adequate validity and reliability must be employed; all interventions must include control and experimental groups; and, due to access limitations, only articles derived from theses published in scientific-research journals were included.

The second phase of the research involved internal validation and included all specialists and experts in the field of play therapy for children with ADHD. The sample size in this phase consisted of four experts, and census sampling was used. In qualitative research, the goal is not generalization but selecting samples that align most closely with the research objectives. Three criteria were considered for selecting experts in play therapy for children with ADHD: holding a doctoral degree in psychology, clinical experience with a play therapy approach, and research experience in this field.

In the initial phase of the study, 60 studies were collected from credible databases such as Google Scholar, ScienceDirect, and other platforms. In the second phase, studies that included statistical metrics such as p-value, t-value, and other indicators were identified. Among these, 27 studies were deemed acceptable, including 22 Persian and 5 English studies.

The content analysis checklist was used to select theses, research designs, and articles meeting inclusion criteria and to extract the necessary information for conducting the meta-analysis from their content. The checklist included the following components: titles of studies on various types of play therapy and ADHD, complete details of authors, year and location of the study, research hypotheses, tools used, validity and reliability of data collection tools, statistical

KMAN-CPN KMAN-Counseling & Psychology Nexus E-ISSN: 3041-9026

population, sample size, and significance levels of the applied tests.

Subsequently, to validate the proposed framework, expert feedback was collected through a survey. For quantitative content validity, the content validity ratio (CVR) was employed. Initially, systematic review and meta-analysis methods were applied to the articles. The systematic review addressed topics such as researcher collaborations, research methods, units of analysis, variables used, and theoretical frameworks of the studies. Following the systematic review, the effect size of each variable was analyzed. Effect size is a statistical measure that reflects the significance of experimental effects or the strength of the relationship between two variables.

Data analysis was performed using CMA and MAXQDA software. Effect size analysis facilitated the evaluation of the effectiveness of various play therapy methods on aggression in children with ADHD.

3. Findings and Results

Table 1 presents the results of the correlation coefficient, lower and upper bounds, Z-statistic, and p-value for each of the components extracted from the studies reviewed.

Table 1

Statistical Results of Collected Studies for Both Fixed-Effects and Random-Effects Models

Study Number	Extracted Components	Mean Differences	Lower Bound (95% Confidence Interval)	Upper Bound (95% Confidence Interval)	Z-Value	p-value
1	Pre-N	18.710	13.922	23.498	7.659	0.000
	Post-N	-1.647	-2.475	-0.819	-3.898	0.000
2	Pre-C	-0.028	-0.744	0.687	-0.078	0.938
	Post-C	1.776	0.931	2.621	4.118	0.000
	Pre-D	0.005	-0.711	0.720	0.013	0.990
	Post-D	1.802	0.954	2.651	4.162	0.000
	Pre-E	1.332	0.541	2.123	3.300	0.001
	Post-E	-0.035	-0.750	0.681	-0.095	0.924
3	Far-9	-1.377	-2.416	-0.339	-2.599	0.009
4	H	20.485	8.840	32.130	3.448	0.001
	I	89.523	38.859	140.187	3.463	0.001
	J	67.091	29.115	105.067	3.463	0.001
	B	63.469	27.541	99.397	3.462	0.001
	K	0.882	-0.355	2.119	1.398	0.162
5	I	19.997	5.109	34.885	2.633	0.008
	O	12.919	3.235	22.603	2.615	0.009
6	Pre-A	1.470	0.734	2.206	3.913	0.000
	Post-A	1.762	0.992	2.531	4.486	0.000
	Pre-B	1.556	0.810	2.302	4.090	0.000
	Post-B	-0.180	-0.834	0.475	-0.538	0.591
7	B	16.339	5.585	27.093	2.978	0.003
8	L	2.302	0.310	4.294	2.265	0.024
9	Pre-M	-0.258	-0.880	0.365	-0.811	0.417
	Post-M	3.507	2.520	4.495	6.962	0.000
10	Pre-F	0.307	-0.413	1.027	0.836	0.403
	Post-F	-0.374	-1.096	0.348	-1.016	0.310
	Pre-G	0.543	-0.186	1.272	1.461	0.144
	Post-G	0.052	-0.663	0.768	0.144	0.886
11	Pre-P	-0.001	-0.716	0.715	-0.002	0.998
	Post-P	-0.859	-1.607	-0.111	-2.251	0.024
	Pre-Q	0.104	-0.612	0.821	0.286	0.775
	Post-Q	-2.883	-3.905	-1.861	-5.530	0.000
12	O	6.880	3.740	10.020	4.294	0.000
	I	7.922	4.341	11.502	4.336	0.000
	R	7.810	4.276	11.343	4.332	0.000
	S	4.284	2.212	6.356	4.052	0.000
13	N	12.313	1.379	23.247	2.207	0.027
	B	10.141	1.081	19.201	2.194	0.028
	T	5.038	0.287	9.789	2.078	0.038

KMAN-CPN KMAN-Counseling & Psychology Nexus
E-ISSN: 3041-9026

	U	13.848	1.584	26.112	2.213	0.027
	I	16.036	1.871	30.201	2.219	0.026
14	Pre-S	0.006	-1.042	1.054	0.011	0.991
	Post-S	3.227	1.740	4.713	4.254	0.000
	Pre-W	0.265	-0.787	1.317	0.493	0.622
	Post-W	-1.914	-3.039	-0.789	-3.410	0.001

As shown, to determine the significance of a component in a conducted study, the t-statistic value for that component must exceed 1.96. On the other hand, the p-value statistic can also be used to interpret the significance or rejection of a component, where the p-value for that component should be less than 0.05. As evident from the results above, out of 27 components from 28 studies collected, those components highlighted in green cells have been confirmed as significant, while the remaining components have been rejected.

Furthermore, at the bottom of the table above, two rows represent the fixed-effects model and the random-effects model, displayed in gray. The mean difference statistic for these two models is 0.541 and 1.521, respectively. To assess the significance of these values, we refer to the values provided under the t-value and p-value columns. As seen, for the two mentioned rows, the t-value and p-value for the fixed-effects model are 8.727 and 0.000, respectively, while for the random-effects model, they are 6.656 and 0.000, respectively. Therefore, with 95% confidence and a 5% error rate, we can assert that in the final random and fixed models, these components are significant, and in the next step, a model based on various play therapy approaches for aggression in children with Attention Deficit/Hyperactivity Disorder can be presented using meta-analysis.

Additionally, the prediction interval, which is reported only in version 4, ranges from -1.627 to 4.668. The effect size of 1.521, based on the mean difference index, is above 0.5 and represents a strong effect within this range. These results are consistent with the z-value statistic, which is 6.656, and its significance is below $p < 0.001$. According to the alpha index of 0.050, we can reject the null hypothesis, which claimed that the value is greater than zero, and conclude that the entire statistical population, compared to the results of the analysis, does not have a mean effect size exactly equal to zero.

Table 2

Meta-analysis findings with effect size, confidence intervals, and homogeneity test results

Row	Identified Components	Component Symbol in CMA	Number of Repetitions	Random Effects Combined Effects	Calculated Mean Difference	Lower Bound (95% Confidence Interval)	Upper Bound (95% Confidence Interval)	Degrees of Freedom	Heterogeneity
1	Learning Disabilities	A	2	0.629	1.609	1.077	2.141	1	89.32
2	Fear and Anxiety	B	10	0.968	2.61	0.985	4.235	9	87.458
3	Lack of Participation	C	3	0.897	0.859	-0.069	1.864	2	81.150
4	Difficulty Expressing	D	2	0.389	0.888	-0.873	2.65	1	90.072
5	Lack of Self-Control	E	2	0.298	0.638	-0.701	1.977	1	84.14
6	Attention Deficit	F	10	0.906	2.815	1.863	5.415	9	94.311
7	Hyperactivity	G	2	0.148	0.293	-0.217	0.804	1	89.169
8	Inflexibility	H	1	0.995	20.485	8.84	32.13	0	91.356
9	Inattention	I	5	0.988	10.725	2.662	18.789	4	88.559
10	Hyperactivity	J	1	0.981	67.091	29.115	105.067	0	91.349
11	Passive Behavior	K	1	0.403	0.882	-0.355	2.119	0	89.189
12	Low Self-Esteem	L	2	0.945	6.989	-3.344	17.321	1	86.448
13	Resilience	M	2	0.539	1.605	-2.085	5.294	1	97.498
14	Child Aggression	N	7	2.637	4.287	0.552	4.723	6	94.164
15	Impulsivity	O	4	0.951	5.554	3.034	8.075	3	54.008
16	Executive Function Deficit	P	2	-0.209	-0.423	-1.264	0.418	1	62.136

KMAN-CPN KMAN-Counseling & Psychology Nexus E-ISSN: 3041-9026

17	Maladaptive and Law-Breaking Behavior	Q	2	-0.508	-1.366	-4.295	1.561	1	95.459
18	Oppositional Defiance	R	1	0.969	7.81	4.276	11.434	0	81.964
19	Conduct Disorder	S	2	2.488	4.284	-0.716	5.691	1	91.346
20	Social Incompatibility	T	4	0.964	4.619	-1.341	10.579	3	84.742
21	Antisocial Behavior	U	3	0.993	12.422	2.649	22.195	2	79.318
22	Internalizing Issues	W	2	-0.25	-0.807	1.187	-2.942	1	86.253
23	Externalizing Issues	X	5	-0.249	-0.526	-1.598	0.546	4	86.828
24	Thinking Problems	Y	2	0.604	1.515	0.119	2.192	1	92.365
25	Depression	Z	1	0.467	1.056	-0.019	2.131	0	82.391
26	Planning	AA	2	1.781	1.410	-0.499	4.062	1	96.129
27	Attitude toward Powerful Sources	AB	1	1.000	1.000	0.368	1.633	0	89.412

Table 2 calculates the combined effect size based on the correlation index. For each of the components listed, these statistics are reported, and now, based on the results from the random-effects column, we can categorize them according to Cohen's index. The frequency distribution of effect size categories is presented below.

Table 3

Components with Effect Size Less Than 0.3 (Small)

Component	Code	Effect Size
Lack of Self-Control	E	0.298
Hyperactivity	G	0.148
Executive Function Deficits	P	-0.209
Maladaptive and Antisocial Behaviors	Q	-0.508
Internalizing Problems	W	-0.25
Externalizing Problems	X	-0.249

Based on the results from Table 3, among the 27 identified components, the components "Lack of Self-Control," "Hyperactivity," "Executive Function Deficits," "Maladaptive and Antisocial Behaviors," "Internalizing Problems," and "Externalizing Problems" have effect sizes of 0.298, 0.148, -0.209, -0.508, -0.25, and -0.249, respectively.

Table 4

Components with Effect Size Between 0.3 and 0.5 (Moderate)

Component	Code	Effect Size
Difficulty in Self-Expression	D	0.389
Passive-Aggressive Behaviors	K	0.403
Depression	Z	0.467

Based on the results from Table 4, among the 27 identified components, "Difficulty in Self-Expression," "Passive-Aggressive Behaviors," and "Depression" have effect sizes of 0.389, 0.403, and 0.467, respectively.

KMAN-CPN KMAN-Counseling & Psychology Nexus
E-ISSN: 3041-9026

Table 5

Components with Effect Size Equal to or Greater Than 0.5 (Large)

Component	Code	Effect Size
Learning Disabilities	A	0.629
Fear and Anxiety	B	0.968
Non-Participation	C	0.897
Attention Deficits	F	0.906
Incompatibility	H	0.995
Inattention	I	0.988
Hyperactivity	J	0.981
Low Self-Esteem	L	0.945
Resilience	M	0.539
Children's Aggression	N	2.637
Impulsivity	O	0.951
Oppositional Defiance	R	0.969
Behavioral Disorders	S	2.488
Social Incompatibility	T	0.964
Antisocial Behaviors	U	0.993
Cognitive Problems	Y	0.604
Planning	AA	1.781
Attitude Toward Authority	AB	1.000

Based on the results from Table 5, 18 out of 27 components identified in this study have an effect size equal to or greater than 0.5. Therefore, we can conclude that these components have a more significant and important role.

Table 6

Frequency Distribution of Effect Size Categories

Range of Impact Intensity	Frequency	Frequency Percentage
Effect Size Less Than 0.3 (Small)	6	16
Effect Size Between 0.3 and 0.5 (Moderate)	3	50
Effect Size 0.5 and Above (Large)	18	34
Total	27	100

Table 6 shows the frequency distribution of each component based on the categorized scale. As the results indicate, 6 components (16%) fall under the category of effect size less than 0.3, 3 components (50%) fall under the category of effect size between 0.3 and 0.5, and the remaining 18 components (34%) fall under the category of effect size 0.5 and above.

4. Discussion and Conclusion

The present study aimed to provide a model for evaluating the effects of various types of play therapy on aggression in children with Attention Deficit Hyperactivity Disorder (ADHD) using a meta-analytic approach. The results showed that play therapy had a significant effect on the aggression of children, and since the effect size based on Cohen's index was above 0.5, we can confirm the intensity and strength of the effect.

In explaining the result, it should be noted that, based on theoretical and practical foundations of aggression and various therapeutic approaches, aggression is a complex form of human behavior in human societies. Aggression is a reaction to frustration and the suppression of desires. Children with ADHD, because they are unable to fulfill their needs, experience multiple frustrations. In such cases, they cannot adapt to environmental conditions, rules, societal limitations, customs, values, and commands, resulting in maladjustment, which leads to aggressive behaviors. Aggression is a response to obstacles and perceived threats. When a child with ADHD feels subjected to environmental phenomena and experiences a sense of helplessness, aggressive behavior manifests. Play therapy removes environmental barriers such as parents, allowing the child to express their aggression freely. In this context, the child expresses their accumulated frustrations through aggression in an appropriate setting and learns to regulate it through

KMAN-CPN KMAN-Counseling & Psychology Nexus E-ISSN: 3041-9026

appropriate feedback, internalizing this regulation (Akbari & Rahmati, 2015; Ashouri & Abedi, 2020; Ashouri & Dalalzadeh Beigi, 2018; Ashouri et al., 2019).

Furthermore, play therapy, by providing a safe environment, facilitates emotional release, reduces tension, and allows free expression of emotions and feelings. Play therapy is an intervention based on the underlying assumption that the therapeutic change, which leads to a reduction in anxiety, is the relationship between the child and the therapist. Additionally, play therapy provides an opportunity to express feelings and concerns, helping children communicate issues that they are otherwise inhibited from expressing in normal situations. During play therapy, through secure interaction with an experienced therapist, the child expresses their inverted feelings and, through this emotional release, engages in emotional regulation. Emotional regulation is a very effective mechanism for controlling aggression. Managing emotions and responding appropriately to situations play a key role in reducing issues and externalizing anger. Therefore, it seems that play therapy is an effective technique for emotional regulation and reducing aggression in these children (Post et al., 2019).

In play therapy, children learn that their behavior is a choice, and by doing so, they also choose the consequences of their actions. Awareness of this helps reinforce self-control behavior. Play is a natural and enjoyable activity that fundamentally contributes to cognitive, emotional, social, and psychomotor development. During play, various forces such as agility, attention, and perception develop, shaping the child's personality and bringing about significant changes in their traits. Play increases curiosity and innovation while also allowing the child to touch the real feelings of their character and experience reality. Play provides the child with an opportunity to present a picture of their inner world and facilitates emotional expression. The primary function of play therapy is to resolve any conflicts in the child that interfere with their effective functioning in the environment. Play therapy creates a safe space for children in which they gradually express their emotions, tensions, feelings of insecurity, aggression, and repressed fears. The communication in the playroom is such that the child expresses their negative feelings through play to an empathetic adult, and the adult reflects and accepts the emotions presented by the child. Once these emotions are accepted by the therapist, they lose their former intensity and power, and their effects on the child's behavior diminish. After this stage, positive expressions begin, merging with the child's play, and the child starts to learn new skills. In other words, it can be said that by expressing aggressive feelings or behaviors in the playroom and having an empathetic and understanding therapist, which is much more important than merely displaying aggressive behavior, the child learns to deal with their needs in a socially appropriate manner (Najafi & Sarpolaki, 2016; Stewart et al., 2002; Stewart, 2019).

The present study faced several limitations. One of the main limitations was the lack of access to resources and studies conducted and published within a specific field, as well as the absence of a cohesive and organized database for conducting meta-analytic research across the country. It is recommended that all research indicators, including research methods, sample size, psychometric indices of the tools used, appropriate statistical analysis methods, significance levels, and effect sizes of each study, be fully and accurately reported so that they can be used in meta-analysis. With the increasing prevalence of the meta-analytic approach, the sensitivity to the complete and accurate publication of findings should also increase. It is also suggested that similar studies be conducted in other groups of children with special needs. The findings of this study can be used to address behavioral issues in children with ADHD and prevent the onset of more severe problems. Providing various play therapy methods to parents, trainers, and specialists who work with these children is also recommended. Additionally, workshops based on play therapy for counselors and psychologists working in this therapeutic area should be conducted.

Authors' Contributions

Authors contributed equally to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

Acknowledgments

We would like to express our gratitude to all individuals helped us to do the project.

Declaration of Interest

The authors report no conflict of interest.

Funding

According to the authors, this article has no financial support.

Ethical Considerations

Not applicable.

References

Akbari, B., & Rahmati, F. (2015). Effectiveness of cognitive-behavioral play therapy in reducing aggression in preschool children with attention deficit/hyperactivity disorder. *Child Psychological Development Quarterly*, *2*(2), 93-100. https://childmentalhealth.ir/article-1-53-en.html

Amiri Morchegani, F., & Lehrabi, B. (2020). Effect of short-term structured play therapy on reducing symptoms of attention deficit/hyperactivity disorder and behavioral disorders in students with ADHD. *New Approach in Educational Sciences Quarterly*, *2*(1), 96-108. https://journal.iocv.ir/article_106857.html?lang=en

Asghari Nekah, S. M., & Abedi, Z. (2014). Effectiveness of executive function-based play therapy in improving response inhibition, planning, and working memory in children with attention deficit/hyperactivity disorder. *Cognitive Psychology Quarterly*, *2*(1), 41-51. https://jcp.khu.ac.ir/article-1-2005-en.html

Ashouri, M., & Abedi, A. (2020). Meta-analysis of the impact of play therapy interventions on adaptive behavior in children with intellectual disabilities. *Child Mental Health Quarterly*, *7*(1), 91-105. https://doi.org/10.29252/jcmh.7.1.9

Ashouri, M., & Dalalzadeh Beigi, F. (2018). Effectiveness of cognitive-behavioral play therapy on behavioral problems and social skills in preschool children with attention deficit/hyperactivity disorder. *Rehabilitation Quarterly*, *19*(2), 103-115. https://doi.org/10.32598/rj.19.2.102

Ashouri, M., Ghasemzadeh, S., & Dalalzadeh, F. (2019). Effectiveness of cognitive-behavioral play therapy on social skills in preschool children with attention deficit/hyperactivity disorder. *Child Mental Health Quarterly*, *6*(2), 28-39. https://doi.org/10.29252/jcmh.6.2.4

Cochran, N. H., Nordling, W. J., & Cochran, J. L. (2022). *Child-Centered Play Therapy: A Practical Guide to Therapeutic Relationships with Children*. Taylor & Francis. https://doi.org/10.4324/9781003260431

Drewes, A. (2009). *Blending Play Therapy with Cognitive Behavioral Therapy: Evidence-based and Other Effective Treatments and Techniques*. Translated by Ramezani Gh, Tehran: Vania. https://books.google.de/books/about/Blending_Play_Therapy_with_Cognitive_Beh.html?id=xxf4cMvu5EoC&redir_esc=y

Drewes, A. A. (2019). Play therapy for children with school behavior problems. In *Prescriptive play therapy: Tailoring interventions for specific childhood problems* (pp. 251). https://psycnet.apa.org/record/2019-54604-015

Fabiano, G. A., Schatz, N. K., Aloe, A. M., Chacko, A., & Chronis-Tuscano, A. (2015). A systematic review of meta-analyses of psychosocial treatment for attention deficit/hyperactivity disorder. *Clinical Child and Family Psychology Review*, *18*(1), 77-97. https://doi.org/10.1007/s10567-015-0178-6

Fajnerova, I., Gregus, D., Francova, A., Noskova, E., Koprivova, J., Stopkova, P., Hlinka, J., & Horacek, J. (2020). Functional Connectivity Changes in Obsessive–Compulsive Disorder Correspond to Interference Control and Obsessions Severity [Original Research]. *Frontiers in Neurology*, *11*. https://doi.org/10.3389/fneur.2020.00568

Feyzollahi, J., Rezaei, F., & Sadeghi, M. (2019). Study on the impact of cognitive-behavioral play therapy combined with parent management training on ADHD symptoms in children aged 7-11. *Rafsanjan Medical Sciences Journal*, *19*(2), 155-172. https://doi.org/10.29252/jrums.19.2.155

Geurts, D. E., Schellekens, M. P., Janssen, L., & Speckens, A. E. (2021). Mechanisms of change in mindfulness-based cognitive therapy in adults with ADHD. *Journal of Attention Disorders*, *25*(9), 1331-1342. https://doi.org/10.1177/1087054719896865

Glenn, M. (2024). *Childhood ADHD: Treated vs. Untreated--Treatments, Implications, & Outcomes*. https://digitalcommons.csp.edu/human-services_masters/6/

Haugan, A. L. J., Sund, A. M., Young, S., Thomsen, P. H., Lydersen, S., & Nøvik, T. S. (2022). Cognitive behavioural group therapy as addition to psychoeducation and pharmacological treatment for adolescents with ADHD symptoms and related impairments: a randomised controlled trial. *BMC psychiatry*, *22*(1), 375. https://doi.org/10.1186/s12888-022-04019-6

Horton, E., Romito, M., Frawley, C., & Schoonover, T. J. (2024). A size-inclusive playroom: Play therapy considerations to promote healing for children of diverse body shapes and sizes. *International Journal of Play Therapy*, *33*(3), 154. https://doi.org/10.1037/pla0000218

Najafi, M., & Sarpolaki, B. (2016). Effectiveness of cognitive-behavioral play therapy on aggression and conduct disorders in primary school children. *Exceptional Individuals Quarterly*, *6*(21), 103-121. https://jpe.atu.ac.ir/article_5283.html?lang=en

Nazarova, V. A., Sokolov, A. V., Chubarev, V. N., Tarasov, V. V., & Schiöth, H. B. (2022). Treatment of ADHD: Drugs, psychological therapies, devices, complementary and alternative methods as well as the trends in clinical trials. *Frontiers in Pharmacology*, *13*, 1066988. https://doi.org/10.3389/fphar.2022.1066988

Nursanaa, W. O., & Ady, I. N. C. (2020). Play therapy for children with anxiety disorders. 5th ASEAN Conference on Psychology, Counselling, and Humanities (ACPCH 2019),

Obiweluozo, P. E., Ede, M. O., Onwurah, C. N., Uzodinma, U. E., Dike, I. C., & Ejiofor, J. N. (2021). Impact of cognitive behavioural play therapy on social anxiety among school children with stuttering deficit: a cluster randomised trial with three months follow-up. *Medicine*, *100*(19). https://doi.org/10.1097/MD.0000000000024350

Post, P. B., Phipps, C. B., Camp, A. C., & Grybush, A. L. (2019). Effectiveness of child-centered play therapy among marginalized children. *International Journal of Play Therapy*, *28*(2), 88. https://doi.org/10.1037/pla0000096

Robinson, A., Simpson, C., & Hott, B. L. (2017). The effects of child-centered play therapy on the behavioral performance of three first grade students with ADHD. *International Journal of Play Therapy*, *26*(2), 73. https://doi.org/10.1037/pla0000047

Rozeh, F., & Ahmadi, A. (2015). Types of play and play therapy in psychology.

Seery, C., Leonard-Curtin, A., Naismith, L., King, N., O'Donnell, F., Byrne, B., & Bramham, J. (2024). Feasibility of the

Understanding and Managing Adult ADHD Programme: open-access online group psychoeducation and acceptance and commitment therapy for adults with attention-deficit hyperactivity disorder. *BJPsych Open*, *10*(5), e163. https://doi.org/10.1192/bjo.2024.743

Sibley, M. H., Graziano, P. A., Coxe, S. J., Bickman, L., Martin, P., & Flores, S. (2023). A Randomized Community-Based Trial of Behavior Therapy vs. Usual Care for Adolescent ADHD: Secondary Outcomes and Effects on Comorbidity. *Behavior therapy*, *54*(5), 839-851. https://doi.org/10.1016/j.beth.2023.03.001

Stewart, A., Dennison, S., & Waterson, E. (2002). Pathways form child Maltreatment to juvenile offending. https://www.aic.gov.au/publications/tandi/tandi241

Stewart, K. E. (2019). *The effects of child-centered play therapy on African American boys with aggressive behavior* Texas A&M University Commerce]. https://www.proquest.com/openview/24a3af989761fd1926ed64ec0a5d80db/1?pq-origsite=gscholar&cbl=18750&diss=y

Tajari, S. N., Gholami, S., Rostami, R., Trabelsi, K., & Taheri, M. (2023). The effect of perceptual-motor exercise on temporal dynamics of cognitive inhibition control in children with developmental coordination disorder. *Mental Health and Physical Activity*, *24*, 100495. https://doi.org/https://doi.org/10.1016/j.mhpa.2022.100495

Thabet, M., Hashemi, N., & Jafari, F. (2020). Effectiveness of group play therapy in reducing behavioral disorders and aggression in preschool children with hyperactivity. *Journal of Modern Advances in Psychology*, *30*(3), 46-62. https://en.civilica.com/doc/1501019/certificate/print/

Veronesi, G. F., Gabellone, A., Tomlinson, A., Solmi, M., Correll, C. U., & Cortese, S. (2024). Treatments in the pipeline for attention-deficit/hyperactivity disorder (ADHD) in adults. *Neuroscience & Biobehavioral Reviews*. https://doi.org/10.1016/j.neubiorev.2024.105774

Wong, T. Y., Chang, Y. T., Wang, M. Y., & Chang, Y. H. (2023). The effectiveness of child-centered play therapy for executive functions in children with attention-deficit/hyperactivity disorder. *Clinical Child Psychology and Psychiatry*, *28*(3), 877-894. https://doi.org/10.1177/13591045221128399