

The Effectiveness of Playdough Play Therapy in Improving Fine Motor Skills in Children with ADHD

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Abstract

Attention Deficit Hyperactivity Disorder (ADHD) is frequently associated with delays in fine motor development, which can affect essential daily activities such as writing, grasping objects, and manipulating small items. This study aims to examine the effectiveness of playdough therapy as an intervention to improve fine motor skills in children with ADHD through a Systematic Literature Review (SLR). The SLR was conducted by systematically collecting, selecting, and analyzing empirical studies published between 2019 and 2023 from academic databases such as Google Scholar and ResearchGate. The inclusion criteria focused on research that implemented playdough-based activities to enhance fine motor abilities in children diagnosed with ADHD. From an initial pool of studies, five articles met the inclusion criteria and were analyzed using a qualitative synthesis approach to identify consistent patterns and outcomes. The results of the review indicate that playdough therapy effectively improves fine motor abilities in children with ADHD, particularly in activities involving hand–eye coordination, finger strength, and manipulation control. Overall, the synthesis of findings demonstrates that playdough therapy is a practical and engaging intervention to support the fine motor development of children with ADHD.

Keywords: ADHD, Fine Motor Skills, Play Therapy, Playdough

Introduction

Attention Deficit Hyperactivity Disorder (ADHD) refers to children who experience difficulties in maintaining attention, a condition commonly known as hyperactivity in children (Adiputra et al., 2021). ADHD is one of the most common psychiatric conditions in children, characterized by three core symptoms: inattention, hyperactivity, and impulsivity (Vashishtha, 2021). It is a neurodevelopmental disorder that affects approximately 8%–12% of children worldwide. Throughout a person's life, ADHD can significantly increase the risk of developing other mental health disorders, educational and occupational failure, accidents, criminal behavior, social disabilities, and substance addiction (Luo et al., 2019). A large body of research has shown that genetics play a significant role in the development of Attention Deficit Hyperactivity Disorder (ADHD) and other commonly co-occurring disorders. Studies have also indicated that approximately one-third of the heritability of ADHD is influenced by the combined effects of multiple genes, rather than by a single major gene or a few specific genes (Faraone & Larsson, 2019). Children with ADHD often exhibit inadequate social behavior and attitudes, accompanied by social impairments and difficulties in reciprocal relationships with their surrounding environment (Fitriyani et al., 2023).

Additionally, children with Attention Deficit Hyperactivity Disorder (ADHD) frequently experience challenges in developing fine motor skills. This issue is reflected in the imbalance between gross and fine motor skills, which can affect both the academic and social performance of children. As the demand for more effective solutions grows, playdough play therapy has become a key focus in efforts to improve fine motor skills in children with ADHD. Moreover, many children with ADHD struggle with fine motor skills—the ability to perform small, controlled movements such as holding a pencil, buttoning a shirt, and other similar tasks. Children with ADHD often experience difficulties in performing activities that require good fine motor control due to poor hand-eye coordination and a lack of finger dexterity (Werdini & Sagar, 2024). These challenges can affect their academic performance, social interactions, and overall quality of life. Fine motor skills are essential for supporting the learning process and for interacting effectively with the surrounding environment (Noenta et al., 2022).

One commonly used intervention method is play therapy. The Kamus Besar Bahasa Indonesia (Indonesian Dictionary) defines the word "*main*" (to play) as an activity involving games for the purpose of having fun, with or without tools. Meanwhile, "*permainan*" (game/play) is defined as something used for playing—an object or item that is played with. From a psychological perspective, play is understood as "an activity (or more broadly, an action) that involves enjoyment and is carried out voluntarily, freely, and without coercion, with the aim of experiencing pleasure during the activity." Play is one of the main activities in a child's life and serves as a natural means of learning. Play therapy is a therapeutic approach commonly used for children with various conditions, including ADHD. This therapy allows children to learn through direct experience while stimulating key areas of development, such as coordination, motor planning, and emotional regulation (Zurianda, 2022). Playing with tools such as playdough enables children to practice fine motor skills indirectly, making the activities feel less burdensome or monotonous (Hardaningtyas et al., 2024).

Playdough can be an effective therapeutic tool to help children with ADHD improve their concentration abilities (Sandrawati et al., 2019a). Play therapy provides children with positive experiences and creates an enjoyable atmosphere, making the learning process and skill development more effective (Ferasinta & Dinata, 2021). Among the various media used in play therapy, playdough is one of the simplest and most effective. Playdough, or modeling clay, is a soft material that can be shaped into various forms and is commonly used in children's play and educational activities (Yuyaina & Dinata, 2023). Children with ADHD often have difficulty sensing and understanding the position of their bodies, making them less aware of their movements. Stimulation through playdough can help them focus more on the fine movements of their hands and fingers (Agfaria, 2020). Play therapy is a therapeutic approach frequently used for children with various conditions, including ADHD. This approach allows children to learn through direct experience while stimulating key developmental aspects such as coordination, motor planning, and emotional regulation (Zurianda, 2022). Playing with supportive tools like playdough enables children to practice fine motor skills indirectly, so the activities feel less burdensome or tiring (Hardaningtyas et al., 2024). Playdough can be an effective therapeutic tool to help children with ADHD improve their concentration abilities (Sandrawati et al., 2019a). It has long been used as a play material for children, particularly in the development of sensory and motor skills (Putri et al., 2021). Play therapy provides children with positive experiences and creates an enjoyable atmosphere, making the learning process and skill enhancement more effective (Ferasinta & Dinata, 2021). Children with ADHD often have difficulty sensing and understanding their body position, making it harder for them to control fine motor movements. Stimulation through playdough can help them focus more on the fine movements of their hands and fingers (Agfaria, 2020). The use of playdough as a fine motor therapy tool offers specific advantages, as it encourages children to move their fingers, hands, and wrists in various ways. Moreover, because playdough is easily moldable, children can create different shapes according to their imagination, which also supports the development of creativity (Putri et al., 2021).

Method

This research uses a Systematic Literature Review approach, which means the researcher searches for highly relevant theoretical references. A literature review focuses on data or written works that can be used as material related to the chosen theme (Rahayu et al., 2021). According to Erika et al. (2021), a literature review is a written summary of articles from books, journals, and various other documents that describe a theory along with both past and current information. Therefore, a literature study prioritizes literature exploration. This method also includes a description of theories from journals and research articles used as foundational references for the research activity. The aim is to identify empirical evidence regarding the effectiveness of playdough play therapy in improving fine motor skills in children with ADHD. The literature search was conducted using Google Scholar, Publish or Perish, and Research Rabbit with keywords such as *playdough*, *ADHD*, *fine motor skills*, and other keyword combinations. The inclusion criteria consisted of studies that employed experimental or quasi-experimental designs, involved participants diagnosed with ADHD, and reported outcomes related to fine motor skills. The article selection process was conducted independently by a single reviewer. Extracted data included participant characteristics, study design, interventions, and main outcomes. Data analysis was carried out qualitatively using meta-synthesis techniques.

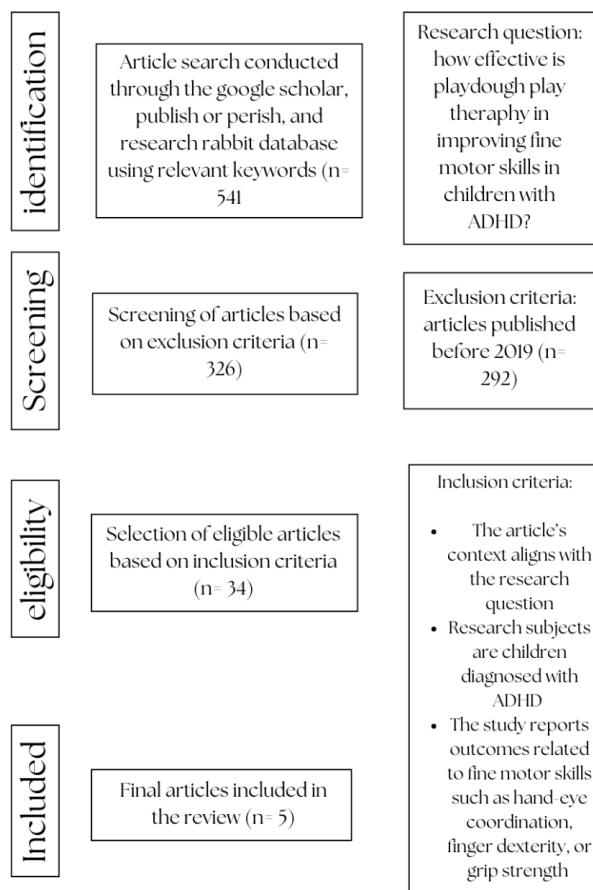


Figure 1. PRISMA Flowchart

Result

Table 1. Analysis Result

Title	Author	Year	Method
Improving Concentration Skills in Children Aged 5–6 Years with ADHD (Attention Deficit Hyperactivity Disorder) Using Educational Play Tools (APE) Based on Behavior Modification	Fri Corina Sandrawati, Martini Jamaris, dan Asep Supena	2019	Mixed-method research (qualitative and quantitative) using a Single Subject Research (SSR) approach
The Effectiveness of Playing with Playdough on Improving Fine Motor Skills in Children with ADHD (Attention Deficit Hyperactivity Disorder) at Home Schooling Cerdas Istimewa Malang	Wahyu Ratna Sari Wibowo	2021	Quantitative research using an experimental approach with a Single Subject Research (SSR) design
The Effect of Playing with Playdough on the Cognitive Abilities of Children Aged 5–6 Years at Wildanun Kindergarten	Reski Putri Amalia, Sitti Nurhidayah Ilyas and Muhammad Yusri Bachtiar	2021	This study uses a quantitative approach with a quasi-experimental design
The Effect of Combining Playdough and Origami Play Therapy on Enhancing Learning Concentration in Hyperactive Children	Eva Riantika Ratna Palupi, Wiwik Utami and Aulia Isnaini Munfarida	2023	Quantitative research using a pre-experimental method with a one-group pretest-posttest design.
The Effect of Using Playdough Media on Fine Motor Skills and Creativity in Group B Children at Khadijah 8 Kindergarten, Banyuwangi Regency	Erina Nuraini, Waris and Kustiyowati	2023	Quantitative research using a pre-experimental design with a one-group pretest-posttest design.

Discussion

A study conducted by Fri Corina Sandrawati, Martini Jamaris, and Asep Supena (2019) aimed to examine the improvement of concentration in children aged 5–6 years with ADHD through the use of Educational Play Tools (APE) combined with behavior modification techniques. The research was carried

out at TK Islam PB Soedirman in East Jakarta in October 2018, involving one research subject. The educational play tools used in the study included playdough. The research employed a Single Subject Research (SSR) method, consisting of three phases: Baseline 1 (3 sessions), Intervention (8 sessions), and Baseline 2 (3 sessions). Qualitative data were obtained through observation records, while quantitative data were gathered by comparing the average scores across the Baseline 1, Intervention, and Baseline 2 phases. The results showed that concentration in children with ADHD could be improved through interventions involving educational play tools. This was demonstrated by the average total concentration score, which decreased from 28.3 during Baseline 1 to 21.75 during the Intervention phase and further to 20.33 in Baseline 2—indicating an improvement in concentration ability (as a lower score reflects better focus). This finding was also supported by a reduction in the frequency of distraction and an increase in the duration of focus when completing tasks. The application of behavior modification techniques, including prompts (verbal, gestural, and physical) and reinforcement (such as praise, thumbs-up, and high-fives), proved to be effective interventions in supporting concentration improvement in children with ADHD. These prompts and reinforcements served as forms of teacher support manifested through their behavior to help enhance the child's concentration abilities (Sandrawati et al., 2019b).

The results of an undergraduate thesis by Wahyu Ratna Sari Wibowo (2021), conducted with an ADHD subject at Homeschooling Cerdas Istimewa Malang, revealed that playdough is effective in improving the fine motor skills of children. During the intervention sessions, playdough use led to noticeable improvements in the strengthening of the palms and fingers, hand-eye coordination, and the flexibility of the hands and fingers. As a result, the scores achieved during playdough activities in the intervention phase continued to increase. The mean level rose from 48.4% in the first baseline phase (A) to 75.4% during the intervention phase (B), and further to 87.18% in the second baseline phase (A'). An overlap value of 0% indicated that playing with playdough was highly effective in enhancing fine motor skills in children with ADHD at Homeschooling Cerdas Istimewa Malang (Wibowo, 2021).

A study conducted by Reski Putri Amalia, Sitti Nurhidayah Ilyas, and Muhammad Yusri Bachtiar (2021) showed that the cognitive abilities of children aged 5–6 years, prior to the playdough intervention, were relatively underdeveloped due to a lack of stimulation from the teacher. In the experimental group, there were 2 children in the "not yet developed" category, 2 in the "emerging development" (MB) category, and 2 in the "developed as expected" (BSH) category. After participating in playdough activities, the children showed improvement: 2 children reached the "emerging development" (MB) level, and 2 reached the "very well developed" (BSB) level. These findings indicate that playdough activities had a positive effect on the cognitive abilities of children aged 5–6 years at Wildanun Kindergarten. The research employed a quantitative approach with a quasi-experimental design. The study was conducted at TK Wildanun in Makassar City with a sample of 6 children in the experimental group. Data collection techniques included observation, treatment tests, and documentation. Based on the hypothesis testing results, H_1 was accepted, with $T\text{-count} \leq T\text{-table}$ and $Z\text{-count} \geq Z\text{-table}$, indicating that playdough activities had a significant effect on the cognitive abilities of children aged 5–6 years at TK Wildanun, Makassar City (Amalia, 2023).

A study by Eva Riantika Ratna Palupi, Wiwik Utami, and Aulia Isnaini Munfarida (2023) found that the combination of playdough and origami play therapy had a significant effect on improving learning concentration in hyperactive children at SLB PKK Sumberrejo and SLB Putra Harapan Bojonegoro. The research used a pre-experimental method with a one-group pretest-posttest design. The population consisted of all hyperactive elementary school students at both schools in 2023, totaling 9 students, with the entire population used as the sample through total sampling. The instrument used was a questionnaire sheet, and data processing involved editing, coding, scoring, and tabulating, followed by analysis using the Wilcoxon test. The results showed that before the intervention, 6 students (66.7%) had a moderate level of learning concentration. After the intervention with playdough and origami play therapy, the concentration level increased, with 5 students (55.6%) achieving a high level of concentration. The statistical test showed a $p\text{-value} = 0.046$, indicating a significant effect of the combined playdough and origami therapy in improving learning concentration in hyperactive children (Palupi et al., 2023).

According to a study by Erina Nuraini, Waris, and Kustiyowati (2023), the use of playdough media has a significant effect on fine motor skills and creativity in children. The study aimed to determine the influence of playdough on the fine motor skills and creativity of Group B children at TK Khadijah 8, Banyuwangi. Fine motor development is closely related to the ability to use fingers in various activities such as pasting, pinching, cutting, painting, and more. The research employed a Pre-Experimental Design with a One-Group Pretest-Posttest Design. Data were collected through observation, interviews, and documentation. Statistical analysis was conducted using independent t-tests and paired sample t-tests. The results showed that playdough activities enhance both fine motor skills and creativity in children. Playing with playdough sharpens fine motor abilities by engaging the hands and fingers, as well as improving eye-hand coordination. In addition, the materials used are easily accessible. Thus, the use of playdough media positively influences the fine motor and creative abilities of Group B children at TK Khadijah 8, Banyuwangi Regency (Nuraini et al., 2023).

Conclusion

Based on the reviewed studies, play therapy using playdough has been proven to be an effective and engaging method to support children's developmental needs, particularly those with Attention Deficit Hyperactivity Disorder (ADHD) and intellectual or hyperactive tendencies. Across various studies, playdough consistently demonstrated positive effects on fine motor development, concentration, and creativity. The tactile and sensory nature of playdough activities provides children with opportunities to strengthen finger muscles, improve hand–eye coordination, and enhance flexibility through hands-on experiences that are both structured and enjoyable.

In children with ADHD, playdough interventions combined with behavior modification techniques—such as verbal prompts and reinforcement—were shown to significantly improve concentration and reduce distractibility. The use of praise, gestures, and other supportive feedback during play further increased children's engagement and focus, creating a positive learning environment that promotes self-regulation and persistence. Similarly, interventions conducted in special education and inclusive settings, such as at Homeschooling Cerdas Istimewa Malang and TK Wildanun Makassar, revealed that playdough activities effectively improved both fine motor and cognitive abilities, indicating their versatility in addressing different developmental domains.

Moreover, the combination of playdough with other creative play therapies, such as origami, also yielded significant improvements in learning concentration and attention span among hyperactive children. These findings highlight that playdough therapy not only enhances motor coordination but also fosters broader cognitive and emotional growth. The simplicity and accessibility of the materials make it an ideal medium for use in classrooms, therapy centers, and at home, promoting inclusivity and continuity of intervention beyond formal learning settings.

In conclusion, play therapy using playdough serves as a holistic and evidence-based approach to improving fine motor, cognitive, and concentration skills in children with ADHD and related developmental challenges. It supports both functional skill development and emotional well-being, while encouraging independence, creativity, and self-confidence. Therefore, educators, therapists, and parents are encouraged to integrate playdough-based play therapy as part of structured intervention programs to enhance children's overall developmental outcomes and quality of life.

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