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Play Thraphy on Fine Motor Skills of Pupils with Dysgraphia in Ikere Ekiti Local Government Area of Ekiti State

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ABSTRACT

Dysgraphia is a specific learning disability affecting pupils' writing abilities, often leading to incomplete notes, poor handwriting, and low academic performance. This study examines the effect of play therapy on fine motor skills in pupils with dysgraphia in Ikere Ekiti Local Government Area, considering the roles of gender and self-esteem. Using a pretest-posttest control group quasi-experimental design, data were collected from male participants (average age 10±15 years) over six weeks, with instruments such as the Dysgraphia Screening Test, Writing Assessment, Self-Esteem Scale, and Weschler Intelligence Scale. Analysis using ANCOVA revealed a significant main effect of treatment on fine motor skills ($f(1,59) = 158.705$; $p<0.05$), but no significant effects of gender, self-esteem, or their interactions with the treatment. Based on the findings, the study recommends play therapy as an effective intervention for improving fine motor skills in pupils with dysgraphia.

1. Introduction

Dysgraphia is a neurological condition that impairs writing abilities; it frequently presents as clumsy handwriting, uneven spacing, and trouble controlling fine motor skills (Cleveland Clinic, 2022). Tasks including letter formation, word spacing, and legibility maintenance can be very difficult for students with dysgraphia, which has a negative impact on their academic achievement and self-esteem. The accurate movement of hand and finger muscles is known as fine motor abilities, and it is essential for handwriting and other learning-related tasks (Suggate et al., 2023). However, deficiencies in these abilities are common in dysgraphia sufferers, which makes their difficulties in the classroom even more severe.

Play therapy has gained popularity recently as a potential remedy for kids with dysgraphia and other learning disabilities. Play therapy helps children develop emotionally, cognitively, and physically through organized or unstructured play activities (Elbeltagi et al., 2023). It offers a special method for improving fine motor abilities in the setting of dysgraphia by involving the user in pleasurable activities that strengthen their muscles, improve hand-eye coordination, and improve motor precision. Play therapy helps students develop their fine motor skills without the strain of traditional handwriting practice by providing an engaging and supportive setting.

The purpose of this study is to investigate whether play therapy can help dysgraphic students with their fine motor skills. This study looks at the connection between play-based activities and the development of motor skills in an effort to show how play therapy can be an effective technique for helping dysgraphia students overcome obstacles and improve their academic performance.

2. Literature Review

Understanding Dysgraphia

The main cause of dysgraphia, a neurological condition that impairs writing, is deficiencies in the motor or cognitive processing systems that are involved in handwriting. Numerous explanations have been found by researchers, including neurological disorders and developmental variables in the brain regions in charge of language processing and motor coordination. (McCloskey & Rapp, 2019) claim that fine motor control deficiencies, which interfere with the motor programs required for producing smooth handwriting, are related to dysgraphia. Other research (Gary et al., 2023), indicates that injury or underdevelopment in the cerebellum and parietal lobes, two brain regions important in coordinating writing movements, may be a factor in dysgraphia.

Dysgraphia can take many distinct forms, and each one affects writing and motor skills differently. Motor dysgraphia is a condition that results in unreadable handwriting despite adequate cognitive ability. It is strongly linked to impairments in fine motor control. Another type of dysgraphia, called spatial dysgraphia, is characterized by problems with spatial organization on paper, making it challenging for sufferers to keep constant letter alignment and spacing (Chung et al., 2020). Finally, linguistic dysgraphia is the inability to form words and phrases correctly due to impairments in cognitive or linguistic processing skills, such as spelling or word retrieval (Chung et al., 2020).

As youngsters struggle to learn handwriting abilities at the appropriate pace, early school years are generally when dysgraphia signs and symptoms become evident. The inability to correctly form letters is one of the most prevalent symptoms, which frequently results in inconsistent or unreadable handwriting. Kids could have trouble holding a pencil correctly, write with strange hand or body positions, or become tired easily when doing written assignments (Cooper-Kahn & Dietzel, 2024). According to research by (Tal-Saban & Weintraub, 2019) students who have dysgraphia may also have trouble with spacing, keeping their writing within lines or margins, and maintaining consistent letter sizes. These issues are directly linked to fine motor control deficiencies, which impair the students' capacity to make the precise hand movements necessary for handwriting assignments (Bonneton-Botté et al., 2023).

Dysgraphia can show up as anxiety and irritation with writing tasks in addition to handwriting. Pupils frequently shy away from written assignments because of concern that their poor handwriting may affect their academic success. According to (Bazen et al., 2023) this avoidance may make problems worse in other domains, like spelling, reading comprehension, and general literacy development. Dysgraphia presents a range of obstacles that go beyond difficulty with handwriting and impact several facets of academic achievement. Students with dysgraphia frequently suffer a gulf between their verbal communication and their writing output, as highlighted by (ARIYO, 2024). This leads to underperformance in written projects even in the face of appropriate comprehension and intellectual aptitude. This disparity may have a detrimental effect on their self-esteem and make them reluctant to take on writing-intensive assignments. Dysgraphia also frequently makes it difficult for students to take meaningful notes, turn in assignments on time, and participate in class activities, which impedes their academic development even more.

Dysgraphia can have emotional and psychological repercussions, such as increased anxiety, low self-esteem, and frustration, in addition to cognitive and motor difficulties. Dysgraphia can cause students to withdraw from social and academic activities because they feel self-conscious about their handwriting or fear judgment from classmates and teachers (Ukwueze & Island, 2017). Early identification and intervention are essential for helping the learning and development of students with dysgraphia due to the cumulative effect of these issues.

Fine Motor Skills

The coordination of small muscles, especially in the hands and fingers, that permits precise motions required for tasks like writing, buttoning clothes, cutting, and object manipulation is referred to as fine motor abilities. Both motor planning abilities of the brain and control over muscular movements are necessary for these talents. Fine motor abilities are necessary for both academic and daily tasks, such as holding a pencil, typing on a keyboard, or cutting with scissors, according to (Saparahayuningsih & Badeni, 2019). The hand-eye coordination that is required to develop these skills is the synchronization of hand muscles with visual information to direct actions. Moreover, finger dexterity

is essential for tasks requiring fine motor control, such as sketching exact shapes or holding small items (Faber et al., 2024).

Early childhood is where fine motor development starts, and it is essential for learning many useful tasks. Children usually acquire fine motor control in phases, beginning with basic actions like grabbing items and progressing to more difficult tasks like writing or using small tools (Faber et al., 2024). In the classroom and beyond, students may find it difficult to perform fundamental activities if they lack certain skills.

The foundation of a child's ability to write well is fine motor abilities. Writing demands a blend of hand-eye synchronization, control, and muscular strength and perception. Studies indicate a clear connection between academic achievement and the development of fine motor skills, particularly during the formative years of schooling. Children with more developed fine motor skills, for instance, typically have greater handwriting fluency, letter formation, and overall writing production (Chandler et al., 2021). Poor fine motor coordination can make it difficult for a youngster to write clearly, as writing is not merely a physical job but also requires cognitive processes (McGlashan et al., 2017).

In addition, early education curricula frequently include fine motor skill-intensive tasks like cutting, drawing, and building puzzles. According to (Saile & Yasin, 2024), these exercises aid in the development of the muscles and coordination needed for handwriting and other upcoming academic obstacles. Youngsters who struggle to keep up with classmates in these activities due to delays in fine motor skill development may find it challenging to feel confident and motivated to participate in class activities (Sutapa et al., 2021).

Children who suffer from dysgraphia, a disease that mostly affects handwriting, frequently show severe deficiencies in their fine motor abilities. These challenges are most noticeable while performing jobs that need for exact finger movements, including precisely creating letters on paper or grasping a pencil. (Sutapa et al., 2021) states that students who suffer from dysgraphia may find it difficult to hold writing implements properly, which can cause fatigue and illegible handwriting. They also frequently have trouble forming and spacing letters, which is related to issues with motor planning and execution.

Another typical problem for students with dysgraphia is poor hand-eye coordination, which makes it more difficult for them to write within the lines or maintain a constant letter. Because of this, students' written work could seem jumbled or disjointed, which makes it challenging for teachers to fairly evaluate their understanding. (Van der Weel & Van der Meer, 2024) show that these motor issues are not limited to handwriting; they also influence other academic skills including typing, cutting, and drawing. As a result, children with dysgraphia are less likely to succeed in a variety of subject areas. Students with dysgraphia may struggle with fine motor skills, which can lead to mental anguish in addition to physical issues. Children who struggle with handwriting may experience frustration or anxiety due to their failure to finish written assignments (Burget et al., 2023). This can lead to decreased involvement in class and worse academic progress.

Play Therapy

Play therapy is a type of psychotherapy in which children express their feelings, ideas, and experiences via play. Its foundation is the notion that play serves as a child's natural means of communication, enabling them to explore difficult feelings and create coping skills in a controlled, secure setting. Through imaginative play activities supervised by a therapist, children can address and overcome psychosocial difficulties through play therapy (Koukourikos et al., 2021). Children benefit most from play therapy because, in contrast to adults, who often express their emotions openly, children may not have the cognitive development or linguistic abilities necessary to do so. (Koukourikos et al., 2021), play thus becomes their language and toys their speech.

Play therapy is primarily informed by many psychological theories, such as developmental psychology, child-centred treatment, and cognitive-behavioural therapy. The child is at the heart of the therapeutic process in child-centred play therapy, which was first developed by Carl Rogers and then further developed by Virginia Axline. The child can take the lead in the play and decide how to proceed with interactions in the secure and supportive atmosphere that the therapist provides, which helps the child develop a sense of control and autonomy (Olsen, 2023). Play therapy, following (Gupta et al., 2023) tenets, is non-directive and non-judgmental, enabling kids to participate in self-discovery and emotional healing free from outside interference.

According to Piaget (1951) and Vygotsky (1978), two developmental psychologists, have also emphasized the importance of play in a child's growth. Play facilitates cognitive functions in youngsters, including symbolic representation, abstract thought, and problem-solving. According to Vygotsky (1978), play is crucial for social development because it helps kids practice collaborating with others, according to rules, and playing roles all of which are critical social skills for navigating relationships.

For kids who struggle with emotional, behavioural, or psychological issues, play therapy has several advantages. Its ability to give kids a safe, non-threatening platform to express their emotions is one of its main benefits. In children coping with trauma, anxiety, and other mental health concerns, play therapy has been demonstrated to lower anxiety, boost self-esteem, and enhance emotional control (Gupta et al., 2023). Through play, children can freely express themselves, which helps with emotional healing and gives therapists insight into the child's inner world. Play therapy is also useful for improving motor and cognitive abilities. Play therapy, for instance, has been demonstrated to enhance fine motor coordination in children with dysgraphia through tasks including drawing, building with blocks, and handling small items (Hurschler Lichtsteiner et al., 2023). Writing and other motor skills require strong hand muscles and improved hand-eye coordination, both of which are enhanced by these exercises.

Even while play therapy is thought to be a very successful intervention, it has many drawbacks. One of the main obstacles is that the child's willingness to participate in play therapy is crucial to its success. Certain children, particularly those who have undergone significant trauma, could have trouble trusting the therapist and might be reluctant to engage in play activities (Hurschler Lichtsteiner et al., 2023). Furthermore, there's a worry that therapists can misread children's play behaviour and draw false inferences about their psychological or emotional health. Play behaviour can be very symbolic and subjective, as (Koukourikos et al., 2021), point out, thus therapists must have the necessary training to understand the subtleties of play. Furthermore, while play therapy has been demonstrated to be beneficial for younger children, its effectiveness for older kids and teenagers is less certain. Because they are frequently more self-conscious about using play as a form of therapy, adolescents in particular may find play therapy to be less engaging (Gupta et al., 2023).

Children can use play therapy as a potent therapeutic method to communicate their feelings and experiences. Play therapy is a highly effective approach for resolving emotional, behavioural, and developmental issues in children. It is based on child-centred, cognitive-behavioural, and developmental theories. It does, however, call for qualified therapists who can appropriately read play behaviour and modify their strategy to fit the particular needs of the child. Even with its drawbacks, play therapy is nevertheless a useful, kid-friendly method of treating mental health issues, especially for young children who are unable to express their emotions verbally.

3. Research Methods

The study employed a pretest-posttest, control group experimental design with a 3x2x3 factorial matrix. The intervention (play therapy) and control were the primary variables, with gender (male and female) and self-esteem at three levels (high and low) as nested factors. The population included all pupils with dysgraphia in selected primary schools in Ikere Ekiti Local Government Area of Ekiti State. A sample of 30 pupils with dysgraphia was drawn from three primary schools using a multistage sampling technique. Initially, a random sampling method was used to select the three schools, ensuring equal opportunities for selection. From these schools, a simple random sampling technique was employed to identify pupils with dysgraphia through screening tools. Lastly, purposive random sampling was used to select 10 participants from each school, who were then randomly assigned to either the experimental or control group.

Four research instruments were utilized in the study: the Weschler Intelligence Scale for pupils (WISC-IV), the Dysgraphia Screening Test (adapted), the Writing Assessment Measure (WAM) (adapted), and a Self-esteem Scale (adopted). The data was analyzed using Analysis of Covariance (ANCOVA) to assess the effects of the interventions on the pupils' fine motor skills and handwriting improvement.

Research Hypotheses

The following null hypotheses will be tested at 0.05 level of significance:

$H_0$1.There is no significant main effect of treatment on fine motor skills of pupils with dysgraphia in Ikere Ekiti Local Government area of Ekiti state.

$H_0$2. There is no significant main effect of gender on fine motor skills of pupils with dysgraphia in Ikere Ekiti Local Government area of Ekiti state.

$H_0$3. There is no significant main effect of self-esteem on fine motor skills pupils with dysgraphia in Ikere Ekiti Local Government area of Ekiti state.

4. Results and Discussions

Table 1. Summary of Analysis of Covariance (ANCOVA) of the main effect of treatment (play therapy) method on fine motor skills of pupils with dysgraphia in Ikere Ekiti Local Government area of Ekiti state

Source	Type III sum of squares	df	Mean square	F	Sig
Corrected Model	177.725a	8	96.466	42.33.6	.001
Intercept	809.667	1	809.667	355.336	.001
Pretest	3.036	1	3.036	1.3333	.254
Treatment	361.624	1	361.624	158.708	.001
Gender	.049	1	.049	.022	.883
self –esteem	.242	1	.242	.106	.746
Treatment * gender	.334	1	.334	.147	.703
treatment*self-esteem	.252	1	.252	.111	.741
gender*Self-esteem	.142	1	.142	.062	.804
treatment*gender*self esteem	2.829	1	2.829	1.242	.270
Error	116.208	51	2.279		
Total	9576.00	60			
Corrected Total	887.833	1159			

a. R Squared = .869 (Adjusted R Squared = .849)

Ho_1: There is no significant main effect of treatment on fine motor skills of pupils with dysgraphia in Ikere Ekiti Local Government area of Ekiti state.

From table 1 shows the effect of play therapy on fine motor skills of pupils with dysgraphia in Ikere Ekiti Local Government area. There was significant main effect of play therapy on fine motor skills of pupils with dysgraphia in Ikere Ekiti ($F_{(1,59)} = 158.705$; $P<0.05$). Therefore, hypothesis that state that there is no significant main effect of treatment on fine motor skills of pupils with dysgraphia in Ikere Ekiti Local Government area of Ekiti state was rejected, in light of the result since the significant value is less than 0.05. This implies that there was Significant difference in fine motor skills of pupils taught with play therapy and conventional method.

Ho_2: There is no significant main effect of gender on fine motor skills of pupils with dysgraphia in Ikere Ekiti Local Government area of Ekiti state.

From table 1 shows the effect of gender on fine motor skills of pupils with dysgraphia in Ikere Ekiti Local Government area. There was no significant main effect of gender on fine motor skills of pupils with dysgraphia in Ikere Ekiti ($F_{(1,59)} = 0.022$, $P>0.05$). Therefore, hypothesis that state that there is no significant main effect of gender on fine motor skills of pupils with dysgraphia in Ikere Ekiti Local Government area of Ekiti state was not rejected, in light of the result since the significant value is less than 0.05. This implies that gender had no significant effect on fine motor skills of pupils with dysgraphia in Ikere Ekiti.

$H_0$3. There is no significant main effect of self-esteem on fine motor skills pupils with dysgraphia in Ikere Ekiti Local Government area of Ekiti state.

From table 1 shows the effect of self-esteem on fine motor skills of pupils with dysgraphia in Ikere Ekiti Local Government area. There was no significant main effect of self-esteem on fine motor skills of pupils with dysgraphia in Ikere Ekiti ($F_{(1,59)} = 0.106$, $P>0.05$). Therefore, hypothesis that state that there is no significant main effect of self-esteem on fine motor skills of pupils with

dysgraphia in Ikere Ekiti Local Government area of Ekiti state was not rejected, in light of the result since the significant value is less than 0.05. This implies that self-esteem had no significant effect on fine motor skills of pupils with dysgraphia in Ikere Ekiti.

Discussion of Findings

The finding of the study revealed that there was significant main effect of play therapy on fine motor skills of pupils with dysgraphia, this finding is in line with the finding of Stagnitti, O'Connor and Sheppard (2012) who found that pupils in a specialist play program increased in their social competence and language ability compared to pupils who were not involved in the program. It was also found out that gender had no significant main effect of fine motor skills of pupils with dysgraphia, this finding is not in line with the finding of Martins et al, (2013) who revealed that males showed more indicators suggestive of dysgraphia than their female counterpart. It was also showed that there is no significant main effect of self-esteem on fine motor skills of pupils with dysgraphia, this finding is not in line with the finding of Stewart, Rule, & Giordano (2007) used to improve fine motor skills in the classroom is what they called the "Tropical Fish" activity.

5. Conclusion

Based on the findings of this study, the following recommendations were made to increase handwriting legibility among adolescents: 1) There should be periodic dialogue between pupil body and school management so as to increase handwriting legibility. 2) Pupils should be encouraged to seek professional help in a quest to ensure the attainment of their yearnings and aspirations. 3) Pupils should be made to understand the basic rudiments of handwriting Nigeria National Policy on Education should mandate all schools to add to the syllabus on handwriting.

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