PLAYING THERAPY PUZZLE INSIDE IMPROVES PRESCHOOL CHILDREN'S FINE MOTOR DEVELOPMENT

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Abstract. Physical abilities known as fine motor skills need the coordination of small muscles and are an important aspect of assessing child development. Delays in fine motor skills in preschool children result in children having difficulty exploring the environment, hampering the learning process, being unable to write, and resulting in decreased interest in learning and creativity. One of the treatments used to help preschoolers enhance their fine motor skills is the use of game therapy puzzles. The goal of this case study is to ascertain how play therapy puzzles affect preschoolers' ability to enhance their fine motor skills. With a one-group pre-test and post-test design and a sample size of 13, this study was a quasi-experimental one. The instrument used was the DDST II. DDST II is one method of screening to assess child development and the research was carried out 8 times in 4 weeks with a frequency of 1 week 2 times Evaluation results after playing puzzle therapy eight times in four weeks were analyzed using the Wilcoxon test and showed that before and after being given an educational game, the media puzzle gave a p-value of 0.05. This shows that there is a significant effect caused by the puzzle game intervention. It is hoped that by providing educational games with optimal media puzzles. In kids ages 4-5, it can enhance the development of fine motor skills.

Keywords: Puzzle Play Therapy, Fine Motor, Preschool.

INTRODUCTION

Preschool-age children are children aged three to six years. (Soetjiningsih & Ranuh, 2013). At this time, Children develop their motor skills quickly, both gross motor skills (which require large muscles, like running, jumping, and climbing) and fine motor skills (which require small muscles, like drawing, cutting, and pasting paper), which are coordinated with the eyes and hands. (Soetjiningsih, 2014).

In 2019, According to the World Health Organization (WHO), 5-25% of preschool-aged children have mild brain abnormalities, including problems with fine motor development (World Health Organization (WHO), 2019). According to the Indonesian Ministry of Health in 2016, children under five years of age (toddlers) in Indonesia experience around 16% of brain and nerve development disorders, which result in toddlers experiencing motor disorders, hearing loss, and intelligence disorders.(Kemenkes RI, 2016) According to the Indonesian Pediatricians Association (IDAI), in 2013, although the exact reasons of developmental delays are unknown, it is believed that 1-3% of Indonesian children under the age of five have delays. It was formerly thought that 5-10% of children had delays.. General development, which includes motor, language, socio-emotional, and cognitive development (IDAI, 2013). According to data from the Kudus Regency Health Office in 2016 on developmental problems in toddlers, from the results of the survey in each Puskesmas in the Kudus Regency area, there were 186 cases (0.2%), of which 47 cases (0.06%) of toddlers aged 3-5 years experienced developmental disorders.(Dinas Kesehatan Kabupaten Kudus, 2016).

Fine motor skills are physical aptitudes related to small muscle coordination and eye-hand coordination. The delayed fine motor impact can result in disturbances in the nervous system or cerebral *palsy*, which causes children to show poor coordination, walk unsteadily, and find it difficult to write.(Bety Bea Septiari, 2012)

Play activities including playing puzzles, mazes, stacking blocks, fitting things into holes based on their shapes, drawing lines, folding paper, and other similar activities can help children develop their fine motor abilities (Bety Bea Septiari, 2012). Fine motor skills that are late can result in a child's development being hampered and not according to his age. A puzzle is a type of game that helps kids develop their thinking abilities and makes it simpler for them to recall

and comprehend ideas. Children become more creative, and the benefits of playing puzzles have an impact on their cognitive development. (Ananda, 2019)

Erni Yuniati's study, Puzzle Influencing the Fine Motoric Development of Pre-School Age Children in Kindergarten, examined how children's fine motor skills develop. At-Taqwa Mekarsari Cimahi discovered that 17 intervention group participants were perplexed and it was found that before children were given educational games of this type for 1 month, their fine motor skills were moderate (64.7%) and low (35.3%). After the intervention of educational groups, moderate fine motor skills decreased from 64.7% to 88.2%, and low fine motor skills decreased from 35.3% to 11.8%.(Yuniati, 2018)

This research was also conducted by Mohamad Da'i, Ira Emeilia Maulidaty with the title The Influence of Play Therapy *Puzzle* On the Fine Motor Development of Preschool Children in Tunas Harapan Kindergarten, Batokan Kasiman, with 15 respondents, the results of fine motor development were obtained before being given play therapy puzzle 1 child has very high fine motor skills; 11 children have high fine motor skills; and 3 children have low fine motor skills. After being given play therapy for 25 minutes, the results showed that the children's fine motor development increased; nine children had very high fine motor skills, five had high fine motor skills, and one had low fine motor skills.(Da'i & Maulidaty, 2021)

Other research was conducted by Lilis about the play Puzzle Puzzle influencing the motoric development of preschool children in Lamongan with 44 preschool child respondents. This research uses a one-*group post-test design with* no control. The instrument used is the DDST II. The results of research conducted for 1 month every week twice for 15 minutes. Before receiving the play method puzzle, the majority of preschoolers' growth was typical for up to 26 kids (59%) out of 44 kids. When given a playing technique problem, children's fine motor skills improved, especially in as many as 38 of them. (Maghfuroh, 2018)

Another study was conducted by Meity and Yuli on the effectiveness of play therapy *(dough* and puzzles) on the level of fine motor development in Dahlia Godong with 31 respondents. The results of the analysis of the effectiveness of play therapy play and puzzles on the level of fine motor development in early childhood at PAUD Dahlia Godong by using the Mann-Whitney *test* show that the average level of play *dough* (16.67) is greater than puzzle (15.38) on the level of fine motor development in early childhood at PAUD Dahlia Godong, where The p-value of 0.615 is more than 0.05, which means that there is no difference in the impact of play therapeutic games and puzzles on the stage of fine motor development in young children at PAUD. Daisy Godong. (Susanti & Trianingsih, 2017)

Using the findings from conversations and observations made in January 14, 2022, with RA Tarbiyatuth Thullab's homeroom teacher in Payaman Village, Mejobo District, Kudus Regency, it was found that there were 17 preschool-age children, 30% of whom experienced low fine motor skills. Based on a preliminary study with 17 children in Denver, it was found that 5 children experienced low fine motor development, including children who could not hold a pencil properly, children who could not draw to follow the shape of a circle, children who could not draw vertical lines, and children who could not move their thumbs. Activities that are often carried out to improve fine motor skills are in the form of sticking pictures and cutting out patterns that are already available. I have never done a stacking stimulation puzzle to develop fine motor skills in children. Therefore, researchers are interested in implementing play therapy puzzles to develop fine motor skills in preschoolers.

METHODS

The goal of this research was to find out how puzzle therapy affected preschoolers' fine motor development. This research is quantitative research using the method Experiments with a research design of "one group pretest and posttest design", was conducted in RA Tarbiyatuth Thullab Payaman, with implementation in February-March 2023. The sample in this study

consisted of 26 children, who were taken by purposive sampling according to the researchers' selection standards for inclusion and exclusion. Data on the category of children's fine motor development levels were obtained using the DDST II format (Denver Development Screening Test II).

Before the intervention, the researcher first measured the child's growth in fine motor skills according to the child's age, and after the intervention, the researcher again measured leveraging the child's development of fine motor skills the DDST II format. The material needed for the intervention is drawing paper that has been given a base. The population of this case study is comprised of students with inclusion criteria (clients willing to be respondents and clients experiencing fine motor development disorders) and exclusion criteria (clients aged > 6 years). There are two variables, namely the independent variable (variable independent) and the dependent variable. Puzzle play therapy is an independent variable, while fine motor development is the dependent variable. Play therapy puzzle This is done 8 times in 4 weeks (1 week, 2x application) with a duration of 15 minutes. Motor development in children can be measured using the DDST II. Measurements using DDST were carried out before and after the play therapy action was carried out on the puzzle. The data were analyzed using the Wilcoxon test because they were not normally distributed.

RESULTS AND DISCUSSION

Result

General data

1. Characteristics of respondents based on age

Table 1. Distribution of respondents by age RA Tarbiyatuth Thullab Payaman January 2023 (n=25)

Age	f	%
4 years	18	69,2
5 years	8	30,7
Total	26	100

Source: Research primary data, 2023

Table 1 explains that of the 26 respondents, the most (69.2%) were aged 4 or less, while the minority (30.7%) were aged 5 or older.

2. Characteristics of respondents based on gender

Table 2. Distribution of respondents by age RA Tarbiyatuth Thullab Payaman January 2023 (n=15)

Sex Kelamin	f	%
Male	11	42,3
Female	15	57,6
Total	26	100

Source: Research primary data, 2023

Table 2 explains that of the 26 respondents, there were more female respondents (57.6%) than male respondents (42.3%).

Custom Data

Table 3. Developmental level of children's fine motor abilities before and after the puzzle game intervention

Development level category fine motor	Frequency distribution Before intervention		Frequency distribution After intervention	
	N	%	N	%
Untestable	0	0	0	0
Suspect	17	62,3	3	11,5
Normal	9	34,6	22	84,6
Total	26	100 %	25	100 %

Table 3 shows that prior to the puzzle-playing intervention, the majority of the kids came into the developmental level suspicious category, with as many as 17 (62.3%) kids, followed by the category of typical fine motor development, which had as many as 9 (34.6%) kids. Group after the intervention play puzzle, there were 3 (11.5%) children who had a suspect fine motor development category, and there were 22 (84.6%) children in the category of normal fine motor development.

Table 4. Mean Rank Improvement in Children's Fine Motor Development Category

N	Mean		Sum of Rank	Ranks
Post Intervension Score	Negative Ranks	0[a]	.00	.0
Pre intervension Score	Positive Ranks	18[b]	7.50	105.00
	Ties	8[c]		
	Total			

Table 4 shows that none of the categories of fine motor skills decreased before or after the intervention. 18 children experienced an increase in fine motor skills, while 8 preschool children had no changes in fine motor development.

Table 5. Effects of Intervention Play *Finger painting* On Increasing Children's Fine Motor Skills

Variabel	N	Mean	Standar Deviation	P-val
Development level category Before treatment	26	2.15	0,732	0,05
After treatment	26	2.88	0,326	0,05

In Table 5, the average fine motor skill score before receiving a puzzle game intervention was 2.15, and the average score after receiving a puzzle game intervention eight times was 2.88, with a p-value of 0.00 (= 0.05). This indicates that puzzle therapy games have an impact on preschoolers' development of fine motor abilities.

Discussions

According to the study's findings, among the 26 respondents, most were 4 years old (69.2%), and the least were 5 years old (30.7%). 4-6 years is the ideal age to enter the world of children's education, especially PAUD, where at this age, children experience very fast growth and development and have unique characteristics, imagination, and short concentrations.

According to theory (Suhartanti et al., 2019) Each child is an individual who is special. The extent to which children fulfill their developmental potential varies as a result of several intrinsic and environmental influences, but each child will definitely go through all stages

according to ageParental education, parental age, gestational age, occupation, and environment are examples of external influences that can influence children's development of fine motor skills. The development of children's fine motor abilities is influenced internally by factors such as hereditary diseases and dietary status. (Sita Dewi & Yulaika, 2019). Late fine motor skills can result in a child's development being hampered and not in accordance with his age (Maghfuroh, 2018).

Table 3 reveals that playing puzzles prior to the intervention, most of the children fell into the category of the developmental level suspect, namely as many as 17 (62.3%) children, followed by the category of normal fine motor development with as many as 9 (34.6%) children. While in the group after the intervention play puzzle, there were 3 (11.5%) children who had a fine motor development category suspect and there were 22 (84.6%) children in the category of normal fine motor development.

There are three levels of fine motor development: low, medium, and high. Low fine motor skills are motor development that is late for children their age. Usually, children have not been able to complete tasks that are appropriate for their age. Classified as having low fine motor skills with a score of 1–10. Moderate fine motor skills, that is, children are able to complete their tasks but are not yet perfect and can be perfected through a process of repeated practice. Classified as moderate fine motor skills with a score of 11–20. High fine motor is the highest level of motor development where children can complete their developmental tasks properly. Classified as having low fine motor skills with a score of 21–30 (Nurlaili, 2019). Fine motor skills at preschool age include children being able to arrange a tower of six cubes, make circles, make vertical lines, shake their thumbs, and choose a line that is thicker long (Bety Bea Septiari, 2012).

Effects of Intervention Playpuzzle On the Improvement of Children's Fine Motoric Ability From Table 4, it is known that there were no children who experienced a decrease both before and after the intervention, in the category of fine motor skill development. The category of fine motor development increased in 16 children, whereas it remained unchanged in 10 other children.

Playing puzzles can improve fine motor skills that involve coordination and neuromuscular (muscle nerves) skills (*hand-eye coordination*) (Ananda, 2019). Playing puzzle games helps improve hand coordination by training the little muscles there, so that kids' motor skills can be better developed. Improved motor skills due to regular stimulus will be received by the five senses and then transmitted to the brain by the brain. Children's brains and five senses, which have not yet developed to a new level, will cause the brain to learn, interpret, comprehend, and react appropriately to inputs (Maghfuroh, 2018).

This is in accordance with research conducted by Erni Yuniati with the title*Puzzle* Influencing the Kindergarten Students' Fine Motor Development in Preschoolers In an experiment conducted by At-Taqwa Mekarsari Cimahi, it was discovered that 17 members of the intervention group were perplexed and that, before to receiving educational activities of this kind for a month, children's fine motor abilities were both moderate (64.7%) and low (35.3%). After the intervention of educational game types, moderate fine motor skills decreased from 64.7% to 88.2%, and low fine motor skills decreased from 35.3% to 11.8% (Yuniati, 2018).

Other research was conducted by Lilis concerning the play technique puzzle influencing the fine motor development of preschool children in Lamongan with 44 preschool kid respondents. This research used a one-group pre-post test design with no control. The instrument utilized is the DDST II. The results of research conducted for 1 month every week twice for 15 minutes with most of the development of preschoolers before being given the play technique puzzle were typical for out of 44 kids, 26 kids (59%) were present. Fine motor development improved after being given a playing method puzzle, notably in as many as 38 children (Maghfuroh, 2018). The development of preschoolers' fine motor skills can therefore

be enhanced through play therapy puzzles.

CONCLUSION

The fine motor development of preschoolers at RA Tarbiyatuth Thullab Payaman Kumara Sari demonstrated an improvement where, from the suspect criteria, the fine motor development of preschoolers had increased to a developmental stage with the average category after intervention with the Puzzle game stimulus. The intervention's impact on promoting preschoolers' fine motor development is examined in this study.

Suggestions

1. For health workers

   The author hopes for health workers to use play therapy puzzles as an alternative to stimulating the level of the improvement of preschoolers' fine motor skills for the benefit of children's motor development.

2. For parents of patients or respondents

   The author hopes that the respondent's parents can add knowledge and insight about the application of play therapy puzzle.

3. For further institutions or researcher

   The author hopes that future case studies can be developed by using multiple game kinds and expanding the number of case study participants using various data collection methods, it is possible to improve children's fine motor skills.

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