

Effectiveness of Playing Origami Intervention on Improvement of Fine Motor Development Pre School Children

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Abstract

Background: One aspect of development in children is fine motor development. Delays in fine motor skills can make children have difficulty exploring the environment, barriers to learning, lazy writing, lack of creativity. This study aims to determine the effectiveness of playing Origami interventions to improve preschool children's fine motor skills in PAUD Aisiyah VI Bengkulu City.

Study Design: This research is a Quasi-Experimental study with a research design of "one group pretest and post-test without control group design", a sample of 26 preschool children using purposive sampling. The intervention was given for two weeks as many as six meetings with 30 minutes per session. Data on children's fine motor development were collected using the DDST II screening format.

Results: Analysis using the Wilcoxon test obtained p value 0.000 (α 0.05). In conclusion, Origami play intervention is statistically effective in improving the fine motor skills of preschool children.

Conclusion: Teachers and parents should pay more attention to and increase the stimulation of preschool children's fine motor skills by facilitating children to play folding, sticking, and paper cutting more often.

Keywords: Origami, Playing, Fine Motoric, Preschool Children

Introduction

Children are unique individuals, always cheerful, full of abilities, optimistic, and curious in their development. Children are the hope for the nation's future and as the next generation in the future¹. The child development aspect is an essential part of achieving the Sustainable Development Goals (SDGs) target. Child development means talking about the growth and development of children².

One crucial aspect of development is fine motor development, which involves the smaller muscles and coordination of the eyes, hands, and fingers. This skill requires great precision. The development of children's motor skills depends on the child's maturity level. At the age of preschool, children's fine motor skills begin to develop where children can draw and write, color, paint,

eat with a spoon, color with fingers, and cut³.

A child can experience developmental delays in only one developmental domain or more. About 5 to 10% of children are thought to have developmental delays. It is estimated that about 1-3% of children under five years of age have general developmental delays (GDD)⁴. Motor development needs to be a severe concern for parents and teachers because this development is sometimes rarely noticed.

Several studies have shown that preschool children's fine motor skills are related to cognitive abilities, mathematical abilities, and even literacy abilities of children in the future. Children who have not acceptable motor delays will have difficulty exploring the environment and experience obstacles in learning, writing, and creativity. As a result, children feel inferior,

doubters, and often misgivings about their environment. Furthermore, children can experience concentration and socializing problems when the child is in elementary school later⁵. Fine motor development requires adequate stimulation. Some play activities that can be done in preschool children can be applied to practice fine motor skills such as playing puzzles, cutting, pasting pictures, sewing, paper folding or origami, coloring, finger painting and playing toy wax or plasticine⁷. Origami play activity is a technique and art for folding a sheet of paper into an object or shape. The folding article appears to be a simple action but requires planning, precision, coordination of the eyes, and fingers, including muscle strength, sense of taste, and touch⁸. Origami is the art of paper folding originating from Japan that trains children's creativity, fine motor skills, coordination of the child's brain and hand muscles, trains the accuracy and strength of the fingers, and teaches children's patience.

The initial survey conducted by researchers at PAUD Aisyiyah VI Bengkulu City through interviews with teachers and three parents, from the three parents it was found that if their children had never been tested for development, the results of interviews with teachers were obtained that in PAUD children are rarely invited to play origami, children usually geared towards drawing and coloring with crayons.

Researchers are interested in knowing the effect of Origami play interventions on children's fine motor development. Given that the right fine motoric product will affect children's outcomes in the future, it should be stimulated frequently. The purpose of this study was to determine the effectiveness of playing Origami interventions to improve the fine motor skills of preschool children in PAUD Aisyiyah VI Bengkulu City.

Materials and Methods

This research is a quantitative research using the Quasi Experiment method with the research design "one group pretest and post-test design," the study was conducted at PAUD Aisyiyah VI Bengkulu City during implementation March-August 2020. The sample in this study were 26 children who were taken using the purposive technique. Sampling. Data on the good motoric development categories of children were obtained using the DDST II (Denver Development Screening Test II) format.

Before the intervention was carried out, the researcher first measured the child's fine motor development according to its age. After being given the intervention, the researcher again estimated the child's fine motor development using the same format. The materials needed for the intervention are origami paper of various sizes and colors, a ruler, and scissors. Playing time is 30 minutes, carried out in 6 meetings for two weeks, origami is made to adjust to objects or animals that are liked by children.

Result

Category of Children's Motor Development Level Before and After Origami Play Intervention

Table 1. Fine motor development level category of preschool children before intervention playing origami

| Fine motor development level category | Frequency distribution before the intervention | |
|---------------------------------------|--|-------|
| | N | % |
| Untestable | 3 | 11,5 |
| Suspect | 13 | 50,0 |
| Normal | 10 | 38,5 |
| Total | 26 | 100 % |

From table 1 above, it is known that before the intervention of playing origami, most of the children, namely 13 children (50.0%), were included in the suspect category and ten children (38.5%) who are included in the variety of acceptable motor development standard

Table 2. Fine motor development level category of preschool children after intervention playing origami

| Fine motor development level category | Frequency distribution after an intervention | |
|---------------------------------------|--|-------|
| | N | % |
| Suspect | 5 | 19,2 |
| Normal | 21 | 80,8 |
| Total | 26 | 100 % |

In table 2 above, it is known that after the intervention of playing origami, most preschool children have the category of suspect fine motor development, and there are 21 children (80.8%) who are included in the category of normal fine motor development.

Data Normality Test

Table 3. The results of the normality test

| Research Variables | N | Shapiro Wilk Test Result |
|--|----|--------------------------|
| Acceptable motor development categories before Playing Origami Interventions | 26 | 0,000 |
| Acceptable motor development level categories before Playing Origami Interventions | 26 | 0,000 |

Based on table 3 above, it is known that all data are not normally distributed (p value < 0.05) so that the bivariate test taken is a non-parametric test, the test is the Wilcoxon test to see the effect before and after giving intervention.

The Effect of Playing Origami Interventions on the Improvement of Fine Motor Skills of Children Pre-School

Table 4. Mean rank increase in fine motoric development category of children

| | | N | Mean Rank | Sum of Ranks |
|--|----------------|-----|-----------|--------------|
| Skor Post Intervensi Finger Full - Skor Pre Intervensi Finger Full | Negative Ranks | 0a | .00 | .00 |
| | Positive Ranks | 14b | 7.50 | 105.00 |
| | Ties | 12c | | |
| | Total | 26 | | |

From Table 4 above, it is known that no children experienced a decline in the category of fine motor development skills before and after the intervention. Fourteen children had improved good motor development categories, and 12 children had unchanged acceptable motor development categories.

Table 5. The Effect of Origami Playing Interventions on the Improvement of Fine Motor Skills

| Variabel | N | Mean | Standar Deviasi | p value |
|---|----|------|-----------------|-----------|
| Fine motor development level category before playing Origami intervention | 26 | 2.27 | 0,667 | 0,000 |
| Fine motor development level category after playing Origami intervention | 26 | 2.81 | 0,402 | |

From the table above, it is known that the average score category for the level of fine motoric development before the Origami Play Intervention was 2.27 and increased to 2.81 after the intervention, with a p value of 0.000 ($\alpha = 0.05$).

It can be concluded that playing Origami interventions are effective in improving fine motor development of preschool children.

Discussion

Category of Children's Motor Development Level Before and After Playing Origami Intervention

From table 1 above, it is known that there are three children (11.5%) who have the untestable fine motor development category, 13 children (50.0%) are included in the suspect category. There are ten children (38.5%) included in the fair motor development category origami play.

There are several factors according to researchers that cause children to get suspect and untestable results at the time of the first test (pretest) in this study; the first is the effect of the child's age when tested and the child's experience of the components tested based on the child's age, given the Denver II test component—based on the child's age line. This is by the research results Yilmaz (2016), where the difference in the child's age when tested affects the social skills, language, and movement of the child. The child's stimulation and environmental factors also play a role in determining this test. Parents' role is an essential part of providing early stimulation for children's intelligence and development in the future⁸.

Children who get more developmental stimulation from parents and caregivers will make their children develop better, considering that development in early childhood is something that can be trained, stimulated and intervened as often as possible. Parents and or caregivers' involvement in providing stimulation to children is essential⁹. Given the development of children's motor skills, both gross and fine motor skills that develop well from an early age, affect the development of children's language skills during infancy and toddlerhood.

Table 2 above provides information that there were five children (19.2%) who had the suspect fine motor development category after the Origami play intervention, and 21 children (80.8%) were included in the normal fine motor development category. From this data, it is known that there has been an increase in the development of children's good motor categories before and after giving Origami play interventions.

The product is an increase in the development of fine motor skills after giving origami play interventions, likewise with research Cllaudia (2018), which shows an increase in fine motor skills in PAUD children after playing origami¹⁰. Origami is an activity that trains creativity, fingers, arm, and wrist movements. Origami teaches art to children, trains eye coordination and small muscles of children's fingers so that if this stimulus is done regularly and continuously, it will introduce the child's fine motor skills¹¹.

Based on table 4, the mean rank of the increase in fine motor skills above is known as no children who experience a decrease in the category of adequate motor development ability before and after the intervention (Negative Ranks). Fourteen children had an increase in the fine motor development category (Positive Ranks), and 12 children had the fine motor development category that did not change (Ties). The 14 children who experienced an increase in most of the suspect development level categories increased to normal. In comparison, the 12 children who were recorded as not sharing the development category mostly came from the normal development category when measured before the intervention, so that there were no changes in the level of development. The Wilcoxon test results obtained a p value of 0.000 (α 0.05), which means that playing origami effectively improves children's fine motoric development. Increase in the mean score of the level of child development category.

During the second test (post-test) using the Denver II format, it was seen that the child succeeded (Passed) in answering and carrying out the examiner's orders, this increased ability was because the child had been trained in fine motor skills using paper folding media or origami. The coordination of the eyes, wrists, and fingers is essential when folding paper, origami makes the development of the fingers and arms increase. Playing origami also requires children to be patient, repeat if they are wrong, and try again, so that in addition to increasing psychomotor abilities, children's thinking and cognitive skills also develop¹². This is what makes children's motor skills increase compared to before.

Given that fine motor development is an essential part of child development. The story of the preschooler's small muscles and to carry out functions such as writing,

using a spoon, coloring, drawing. Good fine motor skills affect the level of children's development in the future¹³.

When the right stimulus is given continuously from an early age, the child will get used to practicing fine motor skills. At an early age, children's brain development increases rapidly. The provision of origami playing interventions and their effectiveness in improving children's fine motor skills is in line with the results of research conducted by Widayati (2019) there is an increase in the child's fine motor skills after being given paper folding play intervention¹⁴.

Conclusion

Based on the results of the research and discussion above, it can be concluded that the intervention playing origami is effective in improving the fine motoric development of preschool children in PAUD Aisyiyah VI, Bengkulu City. The Wilcoxon test results obtained a value of p value 0.000 (α 0.05). Teachers and parents should pay more attention to and increase the stimulation of fine motor skills of preschool children by facilitating children to play folding, sticking, and paper cutting more often.

Conflict of Interest: The authors declare that there is no conflict of interest.

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Ethical Clearence: Health Research Ethics Committee, Health Polytechnic of Health Ministry Bengkulu

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