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Research Article

The Effect of Block Play on Fine Motor Development Among Children in Pre-School

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Abstract

Aims: to find out the influence of block games on the development of fine motor skills in preschool children aged 4-5 years at TKAT ARRIDLO.

Methods: this study used an experimental type of research with a pre- experimental design using a pre-test and post-test design. The population in this study were all preschool children at TKAT ARRIDLO who experienced fine motor development disorders. The sampling technique is to use the entire total population so that the total sample is 17 people. The results of the study were then analyzed using the Wilcoxon test.

Results: The research revealed that 11.8% of children had untested fine motor development before a block game, while 82.2% had suspect development. After the game, 29.4% had suspect development, and 70.6% had normal development. The Wilcoxon test indicated H1 as accepted.

Conclusions: this shows that there is an effect of playing with blocks on the fine motor development of preschoolers at TKAT ARRIDLO. It is hoped that research sites can routinely apply games that train children's motor development, especially fine motor skills.

Keywords:

Block Game, Children, Fine Motoric Development, Motor Skills

INTRODUCTION

Growth and development disorders are serious problems for developed and developing countries in the world. Growth can be seen from weight, height, and head circumference, while development can be seen from motor, social and emotional skills, language skills and cognitive abilities (1). Based on UNICEF (2) data in 2019 shows that the incidence of growth and development disorders in children is still high, as many as 27.5% or equivalent to three million children experiencing disorders. More than 200 million children under five fail to reach their potential in development, spread more in developing countries including Indonesia (3)

Child growth and development in Indonesia

needs serious attention, considering the number of child population that increases every year. Delays in child growth and development in Indonesia are still quite high, namely 5-10% of children experience general delays. These general delays include 2 out of 1000 children experiencing motor development disorders, 3 to 6 out of 1000 children experiencing hearing loss, 1 in 100 having less intelligence, which is around 83 million children (4). The impact of children who experience developmental delays include not being able to perform fine or gross motor movements, speech and language skills, socioemotional disorders and cognitive disorders that should be done by children their age (5).

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Motor development is one of the most important factors in the overall development of an individual. Motor development is the process of growing and developing human movement abilities. Motor development is divided into two, namely gross motor and fine motor (6,7).

Gross motor skills spur children's abilities during activities by using their large muscles, such as locomotor, nonlocomotor, and manipulative (8). Fine motor is a variety of physical skills involving small muscles, eye and hand coordination that require careful coordination (9). Some examples of fine motor development include the ability to wiggle the fingers of the foot, draw two or three parts, draw people, be able to clamp objects, wave hands and so on. Fine motor skills refer to a child's capacity to manage the flexibility and coordination of his fingers, forearms, and hands with small muscles throughout the body. The baby will begin to learn grabbing, grasping, and firmly holding objects presented to them in fine motor activity (10). Preschool is a very important period because during this time children begin to get to know a new environment, learn to socialize, get to know many peers and the process of forming children's behavior. Preschool-age children are included in childhood aged 4-6 years (11,12).

According to the Ministry of Health of the Republic of Indonesia (2018), as many as 85,779 (62.02%) pre-school children aged 4-6 years in Indonesia experience developmental disorders, both fine and gross motor development, hearing loss, lack of intelligence and speech delays. Based on the results of Basic Health Research (Riskesdas) 2013, it shows that the percentage of children who experience gross motor development disorders in Indonesia is 12.4% and fine motor development is 9.8%. This figure has increased compared to the results of Riskesdas in 2010, namely, gross motor development disorders in Indonesia by 8.8% and fine motor development by 6.2% so that the data is still a major public health problem (13).

Based on the results of the Stimulation of Early Growth and Development Detection and Intervention (SDIDTK) services for growth and development disorders in DKI Jakarta in 500 children from five DKI Jakarta Regions, namely North Jakarta, Central Java, East Jakarta, South Jakarta and Thousand Islands, 57 children (11.9%) were found to have growth and development disorders. The most common growth and development disorders were delayed development (late growth) 22 children, then 14 children experienced global delayed development, 10 children malnourished, 7 children Microcephali, and 7 children who did not gain weight in recent months (14).

Delay in fine motor development has several impacts, namely micro and macro impacts. The micro impact of delayed fine motor development is that children have self-confidence (low self-confidence, less active, and difficult to adapt to the environment). The macro impact is the lack of quality of the nation's next generation due to low human resources (15). Efforts that can be made to improve children's fine motor skills are by providing stimulation from outside, such as providing educational games that can increase children's fine motor development and creativity. There are several media that can be used to develop children's fine motor skills such as playing origami, lego, coloring pictures, collage, plasticine. Block games can also be used to develop children's fine motor skills (16).

Playing blocks is one of the construction play tools that are useful for children. Not only for cognitive, motor aspects, but also to improve children's emotional intelligence (EQ). Blocks are of various shapes and colors. There are triangles, quadrilaterals, circles, with a variety of interesting colors. Blocks can be played alone by children, or in groups with their friends (17).

Based on the results of research conducted by Anita Dama, Improving children's fine motor skills at the age of 4-5 years through colored block games at RA Al-Alimin Kembangan, West Jakarta 2020, The results

showed that the results of pre-cycle observations obtained a percentage of 42% which showed that children had low fine motor skills so that cycle I actions were carried out. In cycle I, children's fine motor skills have improved with the percentage of 66%, although an increase of 24%, children have not been able to achieve the expected target and have not been categorized as successful so it needs to be continued in cycle II. The results of cycle II observations showed good improvement. With a percentage increase in fine motor skills of 87%, it increased by 21% from cycle I, so that the results obtained that the activities carried out in cycle II were successful well. The results of this study prove that through the application of block games can improve fine motor skills in children aged 4-5 years. Based on the description above, researchers are interested in conducting research on the Effect of Block Games on the Fine Motor Development of Pre-school Children aged 4-5 years at TKAT ARRIDL North Jakarta in 2023.

METHODS

This type of research is quantitative research, with a quasi-experimental research design with a "pre and post test without control" approach (18). The

treatment given is playing colorful wooden block games carried out by preschool-age children. This research was conducted at TKAT ARRIDL North Jakarta, and the time of this research was carried out on July 18, 20 and 21, 2023. The population in this study is the total number of children with fine motor delays who have been screened using Denver II at TKATARRIDLO North Jakarta as many as 17 children. Sampling techniques using total sampling, The data collection tools used are general data sheets and special ones filled in by the guardians of the respondents as well as Denver II sheets. This implementation stage begins on the first day before the block game is given, the child's fine motor assessment (pretest) is then given block play for 3 days within 30 minutes of each meeting. After 3 days of block play, a fine motor assessment was carried out again (posttest) to see if there was an improvement in the child's fine motor before and after playing wooden blocks. After data collection is complete, data selection and documentation collection are carried out.

Analysis Study

This study used univariate and bivariate analysis. Univariate analysis uses the percentage descriptive method, and bivariate analysis uses the Wilcoxon test.

RESULTS

Univariate Analysis

Table 1. Frequency distribution (Source: Primary Data, 2023)

Characteristic	Max	F	%
Gender	Woman	9	52,9
Age of child	Child to 54-59	8	47,1
Mother's age	Work months1	10	58,8
Recent education	20-30	14	82,4
	IRT SMA	11	64,7
		12	70,6

Based on tables 1, it can be seen that of the 17 respondents, most of them were women, namely 9 children (52.9%), children aged 54-59 months, 8 children (47.1%), 10 children (58.8%), 1st children, 14 mothers (82.4%) aged 20-30 years, 11 mothers (64.7%) with IRT jobs and 12 mothers (70.6%) with the last high school education.

Bivariate Analysis

Table 2. Cross-tabulation of children's fine motor development before and after being given block play

Development Bagan Fine Motor	Before		After	
	F	%	F	%
Cannot be tested	2	11,8	-	-
Suspects	15	82,2	5	29,4
Normal	-	-	12	70,6
Sum	17	100	17	100

Asymp. Sig. (2tailed): .000 **a : 0,05**

(Source : Primary Data, 2023)

Based on the data in table 2 it can be interpreted if there is an increase in fine motor development in most respondents after it is done Block games were 12 respondents (70%). From the results of statistical tests on the Ranks table of the pre-experimental group showed that the total number of respondents was 17 people, there were respondents with a negative rank difference of 0 which means that there were no respondents who experienced a decrease in motor development after being treated using block games, and there was a positive difference (positive rank) 14 which means there were 14 respondents who experienced improved motor development after being given block games. But there are 3 ties which means there are 3 respondents who did not experience a decrease or increase after being given a block game. From the results of analysis through the Wilcoxon test shows the sign value or p value obtained by Asymp. Sig. (2-tailed) .000 where the value of $p < 0.05$ which means H_0 is rejected and H_1 is accepted. This shows that there is an influence of block play on the fine motor development of preschool children at TKAT ARRIDL0, North Jakarta in 2023.

DISCUSSION

Univariate Identify Fine Motor Development Before Beam Play is given.

From the results of the study on all respondents showed that of the 17 respondents, before being given a block game, almost all respondents, namely 15 children (88.2%) experienced suspect fine motor development, and 2 children (11.8%) experienced fine motor development could not be tested According to Rumini, fine motor skills are the ability to use hand muscles well, especially the fingers, including folding fingers, grasping, pinching with fingers, and sticking.

Based on table 5.3, it is known that most respondents are the first child. This is one of the factors that affect the fine motor development of children. Mothers do not have experience in caring for children so they do not know how to provide stimulation or stimulation for child development according to their age.

This is in accordance with Lutan's opinion, that the factors that influence fine motor development are internal and external

factors. External factors are places outside the individual that will directly or indirectly affect a person, for example teaching environment and socio-cultural environment. Meanwhile, according to Rumini and Sundari, there are various factors that influence the development of fine motor skills, one of which is stimulation or stimulation.

Identify fine motor development after block play.

From the results of the study of 17 respondents, almost all respondents, namely 12 children (70.6%) experienced an increase in fine motor development into the normal category, and a small part, namely 5 children (29.4%) experienced suspect fine motor development.

According to Hurlock, states that fine motor as better coordination control that involves more muscle groups to grasp, throw and catch the ball. According to Syahda (19), one of the things that can trigger motor development is to provide skill play type games, namely games that improve children's skills, especially fine motor. For example, the child will be skilled in moving small objects from one place to another, drawing certain objects. So these skills are obtained from the repetition of the games he does such as arranging blocks, folding paper, playing legos. The more often you do exercises, the more skilled your child will be and the better his motor development. The results of research conducted at TKAT ARRIDLO, after being given block games showed that almost all respondents experienced an increase in fine motor development. This suggests that the provision of appropriate stimulation or stimulation can trigger increased fine motor development. Besides being able to improve motor development, block games can be fun for children, train creativity in working in arranging blocks according to their imagination (20).

Bivariate

Analysis of the influence of block play on fine motor development.

The results of the study using the quasi-experimental method using the Wilcoxon test showed the sign value or ρ value obtained by Asymp. Sig. (2-tailed) .000 where the value of $\rho < 0.05$ which means H_0 is rejected and H_1 is accepted. This shows that there is an influence of block play on the fine motor development of preschool children aged 4-5 years at TKAT ARRIDLO, North Jakarta in 2023.

In preschool-age children have begun to show interest in playing, so that by playing will increase the child's fine motor development, one of which is block play. According to Corneles (21) Block game is a game that requires the speed of movement of hands and eyes in arranging blocks and the speed of thinking in the correct preparation accuracy. Then the children arrange the game blocks to become something meaningful. Where the block game itself provides benefits for children, namely children can learn to create missions, learn to understand foundations, learn to understand tools, learn to communicate and share ideas, and train fine motor skills in preschool-age children.

The results of this study are in line with research conducted by Anita Dama (22) the results of pre-cycle observations obtained a percentage of 42% which shows that children have low fine motor skills so that cycle I actions are carried out. In cycle I children's fine motor skills have increased by a percentage of 66%, although they have increased by 24%, children have not been able to achieve the expected targets and have not been categorized as successful so it needs to be continued in cycle II. The results of cycle II observations showed good improvement. With a percentage increase in fine motor skills of 87%, it increased by 21% from cycle I, so that the results obtained that the activities carried out in cycle II were successful well. The results of this study prove that through the application of block games can improve fine motor skills in children aged 4-5 years in RA Al- Alimin

Kembangan, West Jakarta.

From the results of the study, before being given block games from 17 respondents, the results were obtained that 2 children (11.8%) had fine motor development could not be tested, and 15 children (82.2%) had suspect fine motor development. Meanwhile, after being given block games, 5 children (29.4%) had suspect motor development, and 12 children (70.6%) had normal motor development. While the statistical test results showed Positive ranks 14 which means that after being given a block game there was an increase in fine motor development for 14 respondents. While ties 3 showed that there were 3 respondents who did not experience an increase in fine motor development after getting block games (23).

In research conducted at TKAT ARRIDLLO showed that almost all respondents experienced an increase in fine motor development. But a small percentage of respondents did not experience any change or improvement in fine motor development. This is because at the time of the study, the respondents were less cooperative during the process of giving treatment with block games. Other causative factors are lack of stimulation or stimulation early from parents, and nutritional factors where children grow too fat so that inhibits all activities and limitations of children in moving. Knowledge of how to stimulate motor development is also important for parents, especially mothers.

According to Zeng (24), motor development is a direct movement process involves the muscles to move and the nerve process that makes a person able to move his body. Kuhlen and Thompson say physical development is closely related to a child's motor development. According to Carson (25) explained that fine motor is the ability of children to move using smooth (small) muscles such as writing, squeezing,

grasping, drawing, arranging blocks and inserting marbles. Every child is able to reach an optimal stage of fine motor development as long as they get the right stimulation. In each phase, the child needs stimulation to develop his mental and fine motor skills.

CONCLUSIONS

From the results of the study on all respondents showed that of the 17 respondents, before being given a block game, almost all respondents, namely 15 children (88.2%) experienced suspect fine motor development, and 2 children (11.8%) experienced fine motor development could not be tested. From the results of the study of 17 respondents, almost all respondents, namely 12 children (70.6%) experienced an increase in fine motor development into the normal category, and a small part, namely 5 children (29.4%) experienced suspect fine motor development. There is an influence of block play on the fine motor development of preschool children at TKAT ARRIDLLO North Jakarta in 2023 with a p value = 0.000.

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