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Research

The Effect of Traditional Games (*Congklak*) on Cognitive and Fine Motor Development in Children Under Five

Rukmini

School of Health Sciences Adi Husada, Surabaya, East Java

ABSTRACT

Background: In theory, games can be used as a stimulus for optimizing brain development in children under five. Traditional game may be useful to improve brain development. This study aimed to analyze the effect of traditional games (*congklak*) on cognitive and fine motor development in children under five.
Subjects and Method: This was a quasi-experiment study with pre and post-test design conducted at Gembong Sawah, Surabaya, East Java, in February 2021. A total of 33 children under five was selected by random sampling. The dependent variable were cognitive and fine motor development. The independent variable was traditional game (*congklak*). The data were collected by a set of questionnaire and analyzed by Wilcoxon.
Results: Cognitive development on children under five was higher after intervention (Mean= 34.72; SD= 6.07) than before (Mean=26.88; SD= 6.12) and it was statistically significant (p<0.001). Fine motor development in children under five (Mean= 24.58; SD= 3.96) was higher than before (Mean=18.52; SD= 4.61) and it was statistically significant (p<0.001).
Conclusion: Traditional game (congklak) effectively improves cognitive and fine motor development among children under five.

Keywords: traditional games, cognitive development, fine motor development.

Correspondence:
Rukmini. School of Health Science Adi Husada. Jl. Kapasari No.95, Kapasan, Simokerto, Surabaya, East Java. Email: Rukmini.73@gmail.com. Mobile: +6281231833801

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BACKGROUND

The pandemic is not over yet and the government has decided to go to new normal conditions. The new normal condition is a condition where people have to adapt to a new lifestyle and order while still carrying out normal daily activities. The new normal is one of the new hopes, especially for preschool age children in order to optimize their growth and development. Early childhood development itself is a strategic indicator in shaping human capital in order to realize sustainable development. One of the problems in developing countries is delayed child development, where around 250 million children under the age of 5 are at risk of not being able to achieve maximum development (World Bank, 2017). Based on data, it is estimated that more than 200 million children under five in the world are estimated to have cognitive and social emotional development disorders (BPS, 2020). Delays in early childhood development can be caused by the lack of stimulation that children receive from both caregivers or parents. Parents' knowledge of the development of perceiving children can

be achieved by itself without the need for stimulation, families often do not realize the important role they can play for cognitive development and socio-emotional development in the early years. This condition results in a decrease in a child's intelligence, with manifestations in the form of a child's development being inappropriate for age (Susanto, 2011).

Preschool children in Indonesia are 23.7 million people or about 10.4% of the total population of Indonesia, there is a high rate of developmental disorders in Indonesia. Indonesia's 2018 health profile shows that 13-18% of children experience developmental delays. The Indonesian Ministry of Health, 2015), reported that 0.4 million (16%) Indonesian toddlers experience developmental disorders, both fine and gross motor disorders, creativity development, lack of intelligence and speech delays.

Developmental disorders occur due to several things, including race, family or heredity, genetic or chromosomal abnormalities, age and gender. External factors are also important to pay attention to, namely the stimulus to children through games, which generally become a problem in itself, including obstacles in providing play equipment, socializing children, involvement of mothers and other family members in children's activities (Rita et al., 2011).

Traditional games are now starting to be abandoned, replaced by games that are fully presented in Android facilities, which without realizing it have a lot of unfavorable effects on children's development. Studies in the field show that children are increasingly unproductive by playing, because they are used for daily activities in front of computers, television and gadgets, such as playing games, chatting, watching and monitoring their various social media (Margandi, 2017). The use of technology brings its own problems to children who are still very vulnerable to the influence of various foreign cultures that are not necessarily in harmony with our cultural values. As an alternative, the competitor is to cultivate traditional games. Traditional games that used to be found in every corner of the village have begun to be abandoned. Traditional games are very good and suitable to be given from an early age, by aligning when brain development is at its highest. The traditional game of congklak is one method to improve cognitive and motor skills, according to the character of preschool-aged children who are always on the move, don't want to stay still, have high curiosity, like new things. Traditional games offer values that seem implicit and simple, but these values must be possessed by children in their future lives and must be developed from an early age, in order to realize optimal development.

This study aims to analyze the effect of traditional games (congklak) on the cognitive and fine motor development of preschoolers.

SUBJECTS AND METHOD

1. Study Design

Quasi-experimental research with pre and post test designs, conducted in Gembong Sawah, Surabaya, East Java, in February 2021.

2. Population and Sample

A total of 50 preschool children aged 3-6 years were selected by random sampling. Cognitive and fine motor development in preschool children was measured before and after being given traditional games (congklak).

3. Study Variables

The dependent variable is cognitive and fine motor development. The independent variable is the traditional game (congklak). A total of 50 childrens aged 3 to 6 years old was selected by random sampling. The dependent variable were cognitive and fine motor development. The independent variable was

traditional games (congklak). The data were collected by a set of questionnaire and analyzed by Wilcoxon.

4. Operational Definition of Variables

Cognitive development is a child's ability to name symbols of numbers and count and remember information that has been conveyed by officers.

Fine motor skills are children's development in maintaining, grasping, and inserting dakon seeds.

Traditional games (congklak) are a series of playing activities carried out with one object made of plastic which has formed a long oval with 16 holes and has prepared seeds to fill the barn or hole.

5. Study Instruments

The measuring instrument used in this study was a cognitive and fine motor development questionnaire for measurements before and after the traditional game intervention (congklak).

6. Data Analysis

The data were analyzed using univariate analysis to show the characteristics of the research sample presented in the frequency and percentage tables. To show the influence of the traditional game of Cocklak on children's development through the mean and standard deviation, followed by a bivariate analysis using the Wilcoxon signed rank test at a 95% confidence level.

RESULTS

1. Univariate Analysis

Most of the preschool children were 6 years old a total of 25 (50%) and were female at most 31 children (62%), The majority of the children's parents were high school graduates as many as 34 children (68%), and most of them work as entrepreneurs 27 people (54%) (Table 1).

Table 1. Univariate analysis of child age, parental age, gender, parental education, and parental occupation

Variable	Category	Frequency (n)	Percentage (%)
Age	3 years	9	18%
	4 years	10	20%
	5 years	6	12%
	6 years	25	50%
Gender	Female	31	62%
	Male	19	38%
Father's age	30-40 years	14	28%
	41-50 years	31	62%
	51-60 years	5	10%
Father's education	Primary Sschool	5	10%
	Junior High Sschool	11	22%
	Senior High School	34	68%
Father's Occupation	Civil servant	2	4%
	Private employee	20	40%
	Entrepreneur	27	54%
	Unemployed	1	2 %
Maternal Age	25-35 years	16	32%
	36-46 years	27	54%
	47-60 years	14	14%
Maternal Education	Primary Sschool	3	6%
	Junior High Sschool	30	60%
	Senior High Sch	17	34%
Maternal Occupation	Private employee	6	12 %
	Entrepreneur	22	44%
	Unemployed	22	44%

The number of children with cognitive development developing as expected increased after (70%) was given the Congklak game compared to before (26%). The data also shows that there are no children in the undeveloped category after (0%) given the congklak game compared to before (2%) (Table 2).

Table 2. Description of cognitive development before and after the Congklak Game in preschool children

Classification	Cognitive Development			
	Pre		Post	
	n	%	n	%
Very well developed	0	0%	0	0%
Growing As Expected	13	26%	35	70%
Start Growing	36	72%	15	30%
Undeveloped	1	2%	0	0%

Children with fine motor development developed very well after (74%) were given a game of congklak compared to before (0%). The data also shows that the change from before the intervention was that there were still children who had not developed as much as 24% and after the intervention there were no children who were in the 0% undeveloped category (Table 3).

Table 3. Overview of fine motor development before and after the Congklak Game in preschool children

Classification	Pre		Post	
	n	%	n	%
Very well developed	0	0	37	74
Growing As Expected	1	2	13	26
Start Growing	37	74	1	2
Undeveloped	12	24	0	0

2. Analysis Bivariate

The average cognitive development increased after being given the Congklak game (Mean= 34.88; SD= 6.07) compared to before (Mean= 26.88; SD = 6.12), and this result was statistically significant (p<0.001) (Table 4).

Table 4. Cognitive development of preschool children before and after being given traditional games (congklak)

Cognitive development	Mean	SD	Min .	Max.	P
Before the traditional game (congklak)	26.88	6.12	15	40	<0.001
After the traditional game (congklak)	34.88	6.07	22	40	

The mean of fine motor development increased after being given the congklak game (Mean = 24.58; SD = 3.96) compared to before (Mean = 18.52; SD = 4.61), and this result was statistically significant (p<0.001) (Table 5).

Table 5. Fine motor skills of preschool children before and after being given traditional games (congklak)

Fine Motor Development	Mean	SD	Min.	Max.	p
Before the traditional game (congklak)	18.52	4.61	7	28	<0.001
After the traditional game (congklak)	24.58	3.96	14	28	

DISCUSSION

The results of this study indicate that there is an influence of traditional games (congklak) on cognitive development and fine motor development in pre-school age children. Pre-school age children enter the golden age, at that age children begin to be sensitive to receiving intentional or unintentional stimuli around their environment (Hurlock, 1953). According to Soetjiningsih (2012), children aged 60-72 months will experience rapid development including cognitive development, motor development, personal social development, and language development. One of the efforts to stimulate its development is through traditional games. The research of Kochel et al. (2015) argues that traditional board games that used to be relevant and appropriate so that they are still passed down through direct contact from generation to generation.

The results of this study indicate that there is an influence of traditional games (congklak) on the cognitive development of preschool-aged children, this illustrates that the provision of cognitive stimulation given through the game method will please children, so that children easily accept new things that increase their knowledge. Characteristics of cognitive development shown by the ability to count in the game Congklak responds to increasing children's cognitive development. In line with the research of Patricia et al. (2010) suggested that early childhood at the age of 3-5 years children will master their bodies and start with non-formal education, for parents children can interact and think effectively. Congklak games given to pre-school age children are non-formal learning media that are suitable for children to stimulate children's cognitive development. This study also strengthens previous study by Akhida et al. (2014) showed that playing congklak has an effect on the cognitive ability of early childhood in Aisyiyah Beruk 1 Kindergarten, Karanganyar. The traditional game of congklak is basically a two-player strategy game whose goal is to collect the most stones from the board hole into the granary which reflects the number of stones that have been developed into the game (Novi, 2016). In accordance with the research of Fithriyanti et al. (2021), that playing can improve children's numeracy skills, which is illustrated through the ability to count, add, and subtract numbers while playing. Children through this game are stimulated to count the preferred concrete objects in a fun and exciting state. The study conducted to test the effect of the game showed that there was a significant effect of the results between the control class and the experimental class on the mathematical ability of children aged 4-5 years, amounting to 56.41% (Anggeriani et al., 2017). The joyous congklak game can be a stimulating medium for children that is appropriate and exciting for toddler age children. The study that showed cognitive improvement in terms of numeracy conducted by Jelani et al., (2018) showed a score of 89.8% of the subjects agreed that Cocky Game-Based Learning (GBL) can provide joy to children when learning to count.

The results showed that there was a significant effect of traditional games (congklak) on the fine motor development of toddler age children. The traditional game of congklak is one way to stimulate fine motor development through grasping, squeezing and holding the congklak stone so it doesn't fall when inserting the stone into the holes in the board. Based on a study conducted by Kuhlman (2012) to train fine motor skills in toddler age children through hand manipulation to move and position objects in the hand without using the other hand. There are 3 types of hand manipulation skills, namely: translation, shift, and rotation. Translation is the movement of objects between the fingertips and the palm of the hand like a game of man-

cala/congklak. Movement between fingers such as walking fingers, rotation by turning objects using finger pads and having to put down. Based on Imelda's research (2020) that there is an effect of the game of congklak on the fine motor skills of preschool children at Al-Hidayah Setia Bumi Kindergarten, Seputih Banyak District, Central Lampung ($p<0.001$).

Stimulation through games is very important for fine motor development, because children's fine motor development is not influenced by previous developmental history, so the games given are needed to increase children's fine motor development. This is evidenced by research conducted by Viholainen (2006) that no significant relationship between early and late fine motor skills was found. Playing congklak can develop fine motor aspects of preschool-aged children, as illustrated when holding and playing congklak seeds with your fingers. Observations made on children with low fine motor development, children cannot run the game quickly and it is possible that the congklak seeds will be scattered and released from their grip (Hasanah, 2016). Good fine motor development in preschool children will be beneficial for writing skills, namely in holding and holding pencils and other writing tools.

This study concludes that the traditional game of congklak can improve cognitive and fine motor development in preschool-aged children. It is hoped that further research can conduct research on traditional games as an alternative to games that are relatively easy and can be done anywhere and by all children, contain didactic potential advantages and help recreate the atmosphere and profile created by past generations.

AUTHOR CONTRIBUTION

Writing concepts, methods, data collection, analysis and editing of manuscripts are carried out by researchers.

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CONFLICT OF INTERESTS

There is no conflict of interest in this study.

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