

Original Research

Differences in Gross Motor Skills of Preschool Children Aged 5-6 Years Before and After Playing the Traditional Engklek Game

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Bangsalsari, Jember 68154, Indonesia.Email: meryretnoningdiahqqq@gmail.com**How to cite this article:** Retnoningdiah M, Alfitri R, Ilmiah WS. Differences in Gross Motor Skills of Preschool Children Aged 5-6 Years Before and After Playing the Traditional Engklek Game. *Health Dynamics*, 2024, 1(4), 111-116. <https://doi.org/10.33846/hd10402>**Copyrights:** © 2024 by the authors. This is an open access article under the terms and conditions of the Creative Commons Attribution – NoDerivatives 4.0 International (CC BY-ND 4.0) license (<https://creativecommons.org/licenses/by-nd/4.0/>).**ABSTRACT**

Background: Gross motor skills are important for a child's survival because they are stimulated during childhood, which is a long time to practice everything that will be carried into adulthood. According to national data, in Indonesia, 11% of children below the age of 5 experience growth and development disorders. The purpose of this research was to analyze the differences on the child's gross motor skills before and after the traditional engklek game at Dharma Wanita Tisnogambar Kindergarten, Jember Regency. **Methods:** Pre-experimental is the method used in this research with a one-group pre-post test approach. With a total population of 30 Dharma Wanita Tisnogambar Kindergarten children and a sample of 16, the SOP for playing crank and gross motor observation sheets, the intervention was carried out for 2 weeks with 4 meetings, the Wilcoxon Match Pairs Test is the analysis used by the researchers. **Results:** The results of the gross motoric research before the game were carried out in the BB category of as many as 11 children (68.8%) and in the MB category of as many as 5 children (31.3%). Meanwhile, after the game was played, the results were in the BSB category, namely 10 people (62.5%), in the BSH category, namely 4 people (25%), and 2 other people were in the MB category (12.5%). The results of the analysis show that there are differences on the child's gross motor skills before and after the traditional engklek game, the p-value is $0.03 \leq - 0.05$. **Conclusions:** The conclusion is that before and after the traditional engklek game, there are differences in the gross motor skills of children in kindergarten.

Keywords: Preschool children, gross motor, traditional engklek game

1. INTRODUCTION

Preschool children are individuals with extraordinary potential and still need to be developed. This age range covers from birth to six years.⁽¹⁾ One of the important developments that need to be stimulated is motor development.⁽²⁾ The development of children's motor skills shall be divided in two, namely fine motor skills and gross motor skills. Fine motor skills use fine muscles to performs movements or parts of the body that are influenced by opportunities for learning and practice.⁽³⁾ Meanwhile, gross motor skills are very important for a child's survival because they are stimulated and honed during childhood, which is a long time to practice everything that will be carried into adulthood. The World Health Organization (WHO) in 2018 reports that, data on the prevalence of toddlers experiencing growth and development disorders was 28.7% and Indonesia was included as the third country with the highest prevalence in

in the Southeast Asia region. According to 2019 UNICEF data, there are 27.5% or 3 million children experiencing disorders, and the largest is motor development disorders. National data according to the Indonesian Ministry of Health shows that in 2018, 11% of children below the age of 5 in Indonesia experienced growth and development disorders. Meanwhile, Riskesdas (Basic health research of health ministry of Indonesia) data for 2018 shows that the motor development of children aged 36 to 59 months reached 97.8% of the target of 98.3%. Prevalence to the East Java Province Health Service in 2020, 35% of children under five experienced gross motor delays. According to the 2022 SSGI results, the prevalence rate of growth and development disorders in Jember Regency increased by 11 points, making Jember the Regency with a stunting prevalence rate of 35.9 %, the highest stunting in East Java.

The results of a preliminary study carried out on September 29 2023 at Dharma Wanita Tisnogambar Kindergarten, Jember Regency, through observations related to children's gross motor skills, out of 10 children aged 5-6 years, it was found that 7 children could not balance when jumping, as shown by children who after jumping some of the children fell or swayed when throwing without direction, for example when throwing the ball towards the teacher, and 3 children were able to jump one foot perfectly, in balance, and when throwing with direction. Furthermore, based on the result of interviews with teachers, related to the learning activities carried out at Dharma Wanita Kindergarten, apart from the results of observations, information was obtained from the teacher teaching morning exercises, writing activities, calculating, and cutting paper. The evaluation results showed that 7 children had not developed and 3 children had developed well.

Factors that influence gross motor skills are genetics, environment, gender, and stimulus. In the digital era 5.0, children born in the modern era are known as Native Digital Generations, namely children who were born in the digital era and have interacted with various digital devices since childhood.⁽⁴⁾ This is the cause of motor delays in children. Apart from that, the lack of stimulus provided by parents or caregivers can also cause children to develop less gross motor skills.

The impact of slow motor skills will hinder a child's growth and development according to their age, such as slow growth, children being late in walking, and

late in being able to sit and crawl. These difficulties will continue to be experienced by the child until the child goes to school and cause problems like jumping, throwing, and kicking the ball, and the most inevitable thing is that the child will experience mental retardation and developmental disabilities, then neurological development will be slow.⁽⁵⁾

Based on the description relating to children's motor development, efforts need to be made to improve children's gross motor problems. One of them is the traditional game engklek. The purpose of this research is to find out the differences in gross motor skills in preschool children aged 5-6 years before and after being given the traditional engklek game at Dharma Wanita Tisnogambar Kindergarten, Jember Regency. From the results of previous research, it was found that there was an influence of the traditional engklek game on children's gross motor skills. The statistical results showed that there was a significant influence between variable X (traditional engklek game) and variable Y (gross motor skills).

2. METHODS

2.1 Study design

Pre-experimental is the method used in this research design using a one-group pretest-posttest approach. This means that the experimental group was given a pretest before being given treatment and given a posttest after being given treatment

2.2 Participants

All children from the age have been included in this study at Dharma Wanita Tisnogambar Kindergarten who experienced gross motor development disorders totaling 30 children. The sample used in this study was 16 children with inclusion criteria for preschool children in groups A and B aged 5-6 years, pre-school children. schools who are willing to be respondents and preschool children who experience gross motor disorders. This study also has inclusion criteria, namely preschool children who experience physical disorders or disabilities.

2.3 Data collection

The research instrument used an observation sheet to measure the level of children's gross motor development abilities, SOP for the engklek game, and educational props engklek media. The data collection

process was carried out during the game, namely using observation and documentation techniques which were carried out for 2 weeks with 4 meetings. The pretest was carried out on the first day before the researcher gave the play example, the posttest was carried out at the end of the meeting

2.4 Data analysis

The Wilcoxon Match Pairs Test is the analysis used by the researchers with the help of SPSS V.25.

3. RESULTS

Tables 1 Shows that the majority of children at Dharma Wanita Tisnogambar Kindergarten, Jember Regency are female with a total of 10 people (62.5%). And a small percentage were male, 6 people (37.5%). Researchers concluded that girls' gross motor skills are slower than boys' because in general boys are more physically active than girls, so boys' gross motor development is faster.

Tables 1. Frequency Distribution of Respondents Based on Gender

Gender	Frequency	Percentage (%)
Boy	6	37.5
Girl	10	62.5
Total	16	100

Based on Table 2, most of the children from Dharma Wanita Tisnogambar Kindergarten, Jember Regency, are 5 years old with a total of 9 people (56.3%). And a small portion aged 6 years as many as 7 people (43.8%). Researchers concluded that children aged 5 years were slower in gross motor skills than children aged 6 years because children aged 6 years were not only older in age but also mature in physical development compared to children aged 5 years.

Table 2. Frequency Distribution of Respondents Based on Age

Age	Frequency	Percentage (%)
5 years	9	56.3
6 years	7	43.8
Total	16	100

Based on Table 3, most of the mothers of respondents were aged 26 - 36 years (53.3%). And a small number of others aged 37 – 47 years, totaling 7 people (43.8%%). From this table, the researchers

concluded that there was no relationship between the mother's age and children's gross motor skills because most mothers were 26 – 36 years old.

Table 3. Frequency Distribution of Respondents Based on Mother's Age

Mother's Age	Frequency	Percentage (%)
26 - 36 Years	9	53.3
37 – 47 Years	7	43.8
Total	16	100

Based on Table 4, most of the respondents' mothers' education was junior high school, 8 people (50%). A small portion of the respondents' mothers' education was in elementary school, 5 people (31.3%), and 3 people in high school (18.8%). Researchers draw the conclusion that higher education will increase mothers' knowledge so that mothers will be more aware of the importance of motor development in children.

Table 4. Frequency Distribution of Respondents Based on Mother's Education

Mother's Education	Frequency	Percentage (%)
Elementary School	5	31.3
Junior High School	8	50
Senior High School	3	18.8
Total	16	100

Based on Table 5, most of the respondents' mothers do not work or are housewives, 10 people (43.8%) and self-employed, 7 people (43.8%), and a small percentage of the respondents' mothers work as farmers, 2 people (12.5%). Researchers concluded that there is an influence between mothers' work and children's gross motor skills because some of the respondents' mothers work and rarely spend time so that children are not properly stimulated.

Table 5. Frequency Distribution of Respondents Based on Mother's Job

Mother's Job	Frequency	Percentage (%)
Housewife	7	43.8
Self-employed	7	43.8
Farmer	2	12.5
Total	16	100

Based on Table 6, the results of the Gross Motor Evaluation of Children Aged 5 - 6 Years Before Playing Engklek Games were in the BB category as many as 11

people (68.8%) and in the MB category as many as 5 people (31.3%). The results of the Gross Motor Assessment of Children Aged 5 - 6 Years After Playing Games were in the BSB category with 10 people (62.5%), the BSH category with 4 people (25%), and the MB category with 2 people (12.5%).

Table 6. Hypothesis Testing

		After			Total
		MB	BSH	BSB	
Before	BB	2	3	6	11
	MB	0	1	4	5
Total		2	4	10	16

Based on the results of the *Wilcoxon Match Pairs Test*, researchers obtained a P value analysis of $0.03 \leq 0.05$ that there was a difference in the gross motor skills of children before being given the game and after being given the game so that it could be concluded that there was a difference in the gross motor skills of preschool children aged 5 - 6 before and after being given the Traditional Engklek Year Game at the Dharma Wanita Tisnogambar Kindergarten, Jember Regency.

Table 7. *Wilcoxon Match Pairs Test* Statistical Test Results

	After_given - Before_given
Z	-3.573
Asymp. Sig. (2-tailed)	0.000

4. DISCUSSION

From this research, the results showed that gross motor skills before the traditional engklek game were played in Dharma Wanita Kindergarten Tisnogambar, Jember Regency, namely the BB category were 11 children (68.8%) and the MB category were 5 children (31.3%).

Gross motor skills are body movement abilities that involve the use of large muscles in most or all parts of the body. Gross motor skills are very important for children so they can sit, kick, run, go up and down stairs, and do other activities.⁽⁶⁾ Gross motor skills are physical activities that involve body movements that require coordination between body parts using large muscles, such as crawling, walking, swinging arms, and jumping. Therefore, gross motor skills are very important to develop because they involve daily

activities.⁽⁷⁾ Factors that influence motor development are genetics, prenatal and postnatal conditions, high IQ environment, stimuli, prematurity, physical abnormalities, and gender.⁽⁸⁾

The research results show that of the 16 respondents, 11 people were in the BB category and 5 other people were in the MB category, means that there is a lack of gross motor stimulation and at school every day they only focus on fine motor skills such as reading, writing, calculating, and coloring, also a lack of gaming media. Each child's development is different. Children's gross motor skills cannot yet be achieved because most children still need help and must be demonstrated first to achieve motor development according to the four indicator aspects.

There are results of the gross motor assessment in children aged 5 - 6 years after playing the crank game at Dharma Wanita Tisnogambar Kindergarten, Jember Regency in 2024, namely that the majority of the children at Dharma Wanita Tisnogambar Kindergarten, Jember Regency are in the BSB category, namely 10 people (62.5%), in the category BSH, namely 4 people (25%), and 2 other people were in the MB category (12.5%). The engklek game is a traditional jumping game that involves large muscles on a flat plane that has boxes drawn on the ground, where players have to jump from one box to another, using only one foot.⁽⁹⁾

The engklek game can be played by children aged 5-6 years with the aim of stimulating children's development, one of which is gross motor skills. With the help of crank games, children can improve their logical intelligence. Engklek helps children think critically and make decisions in every step they take. Optimizing the growth and development of children's bodies and brains through types of supportive play activities is one of the important efforts in developing kinesthetic intelligence, one of which is balance in children's bodies.⁽¹⁰⁾ So that, it can optimize healthy and strong physical growth.

The results of the research show that the majority of Dharma Wanita Kindergarten children in Tisnogambar Jember Regency are in the BSB category, 10 people, BSH 4 people, and MB 2 people. From these data, it is known that children's gross motor development in the Traditional Engklek Game has increased. The results of the research show that the traditional game of engklek is able to stimulate children's gross motor skills so that it can stimulate four indicators of children's gross motor development. The

engklek game is a type of traditional game that focuses on developing large muscles such as leg muscles, back muscles, and hand muscles. For this reason, the engklek game is considered the right stimulation to increase children's gross motor skills.⁽¹¹⁾

This game is played 4 times in 2 weeks. Every week there are 2 meetings, apart from that the researchers also provide the traditional engklek game media to kindergartens so that children can remember how the 4 aspects can be achieved because they have tried several times with the same game. Children's gross motor skills have not developed well due to the lack of game media. With the traditional engklek game media which is interesting and has never existed before in the place where they study, it can be a solution so that children's gross motor skills improve, and those who previously got low grades will increase in value. So that, children are able to achieve the expected indicators.

The results of the research show that H1 is accepted and H0 is rejected, which means that there is a significant difference before and after the traditional Engklek game is played at the Dharma Wanita Tisnogambar Kindergarten, Jember Regency, as proven by the Wilcoxon Match Paired Test statistical test, obtaining a p-value of $0.000 < 0.05$. This means there are differences before and after being given the traditional engklek game. Play activities have an important role in improving children's development. Through play, children will actively move and support their physical and psychological development. Apart from that, playing can also stimulate children's creativity. Play activities can be carried out in various places, from home to school, to the community.⁽¹²⁾ Children cannot be separated from playing because through playing, they can learn new things and stimulate good physical, motor, language, cognitive, and social-emotional development.⁽¹³⁾

The majority of kindergarten children sampled in this study were girls with a total of 10 people (62.5%). And a small percentage were male, 6 people (37.5%). According to research conducted by Yenny, it was found that male children have better gross motor development compared to female children.⁽¹⁴⁾ In Table 2, the majority of kindergarten children are 5 years old with a total of 9 people (56.3%). And a small portion aged 6 years as many as 7 people (43.8%). Researchers concluded that children aged 5 years have slower gross motor skills than children aged 6 years because as they get older, the development of motor skills in children

will increase gradually and continuously, namely from a simple, disorganized, and less skilled state to a more advanced motor performance. complicated and better organized.⁽¹⁵⁾

Table 3: Most of the mothers of respondents aged 26 - 36 years (53.3%). And a small number of others aged 37 - 47 years, totaling 7 people (43.8%%). From this table, the researcher concluded that there is no relationship between the mother's age and children's gross motor skills. According to research conducted by Anggraini and Handajany,⁽¹⁶⁾ there is no relationship between the age of the mother and the development children's motor skills.

In Table 4, most of the respondents' mothers' education was junior high school, 8 people (50%). A small portion of the respondents' mothers' education was elementary school, 5 people (31.3%), and 3 people high school (18.8%). Parents' education has a significant influence on their mindset in caring for their children, both through formal and non-formal education. Apart from that, the level of parental education also has an impact on toddlers' motor development. Parents who have higher education tend to have a better understanding of their children's needs.⁽¹⁷⁾

In Table 5, most of the mothers of the respondents do not work or are housewives as many as 10 people (43.8%) and entrepreneurs as many as 7 people (43.8%), and a small portion of the mothers of the respondents work as farmers as many as 2 people (12.5%). Parents who are busy working have limited time, so they often cannot provide various kinds of instant food rather than food they prepare themselves without considering the nutritional needs that should be met by children.⁽¹⁷⁾

Based on research conducted by Ritonga and Pasaribu,⁽¹⁸⁾ in 2022 with the title The Influence of Traditional Games on the Gross Motor Ability of Group B Children at Kindergarten Diponegoro Asam Jawa, the average gross motor ability of children using the traditional engklek game is higher. higher (87.18) than the average the traditional jump rope game that is using for the gross motor skills of children (84.89). Thus, traditional games influence the gross motor skills of Group B children at the Diponegoro Asam Jawa Kindergarten.

5. CONCLUSION

In the research entitled Differences in Gross Motor Skills of Preschool Children Aged 5 - 6 Years

Before and After Being Given the Traditional Engklek Game at Dharma Wanita Tisnogambar Kindergarten, Jember Regency, it can be concluded the results of research before and after the traditional game of engklek, it was found that the Wilcoxon Match Paired Test Statistical Test Results obtained p-value $0.000 < 0.05$, which means that there is a difference in the game of engklek on the gross motor development of preschool children aged 5-6 years at Dharma Wanita Tisnogambar Kindergarten, Jember Regency. To achieve better results, researchers advise children to train their gross motor skills more often by playing engklek with friends at home after school or during holidays.

Conflict of Interest

The authors declare no conflict of interest.

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