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# Investigating Gross Motor Skills in Children Aged 5-6 Years at Islamic-Based Kindergartens

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### **Abstract**

Gross motor skills in children aged 5 to 6 support their physical progress and overall abilities. In this age range, children are in an essential phase of improving muscle strength, body coordination, and other motor skills, which can be acquired through a variety of physical activities, both structured and free. This study evaluates gross motor development in children aged 5 to 6 years enrolled in kindergartens in the Sungai Kunjang sub-district, Samarinda. The research method used was a quantitative approach with a survey design, and data analysis was conducted using SPSS software version 22.0. The population in this study was 13 kindergartens in the Sungai Kunjang Subdistrict of Samarinda. The samples in this study were two kindergartens, which were determined based on the specified criteria (purposive sampling): the kindergarten located in Sungai Kunjang Subdistrict, an Islamic-based kindergarten using the Merdeka Curriculum. Data were collected by distributing questionnaires to teachers in two kindergartens in Sungai Kunjang Subdistrict, Samarinda City. The findings showed that the children's gross motor skills were still relatively low, with the questionnaire indicating that of the 17 indicators observed, most of the children's skills were in the Beginning to Develop (MB) category, with an average score of 1.33. These results imply that further stimulation, such as educational game tools, should support children's gross motor development in kindergartens in Sungai Kunjang District, Samarinda.

**Keywords**: children aged 5-6 years, educational games, gross motor skills

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## A. Introduction

Gross motor skills are very influential in early childhood development because they impact other aspects of growth. Each child at this age shows a different development pattern, which includes aspects of physical movement, cognitive, socioemotional, creativity, and language skills, which are adjusted to their stage of development (Erwanda & Sutapa, 2023). Motor skills are an essential part of child development strongly influenced by physical activity. Appropriate exercise is needed for children to move freely, quickly, and energetically (Pertiwi et al., 2022). Children who are physically active and have skilled gross motor skills tend to show better social skills and are better prepared to face various other developmental challenges (Mahmud, 2019). The gross motor aspects of children aged 5-6 years can be seen from the child's ability when doing activities up and down stairs, jumping, running, performing coordinated body movements to train flexibility, balance, and agility, coordinating eye, foot, hand, and head movements in imitating dance or gymnastics, playing physically with rules, using the right and left hands skillfully, and performing personal hygiene activities (Sulaiman et al., 2019).

According to data from the United Nations Children's Fund (UNICEF) in 2021, the Central African Republic recorded the lowest development rate at 36%, while in Indonesia, Central Sulawesi Province reported the lowest development rate at 94.2% (Ferasinta et al., 2022). Based on the 2018 Basic Health Research (Riskesdas), about 12.4% of children had difficulties with gross motor skills (Siringoringo & Jagentar, 2022). In Indonesia, most children begin walking at approximately 14 months old. (Rosidi et al., 2023). In contrast, in countries like the United States, the average age for walking is 12 months, while in Europe, children generally start walking between 12 and 13 months. (Rosidi et al., 2023). Physical activity during childhood is critical for maximizing movement skills and fostering healthy motor abilities (Aliriad et al., 2023).

One of the challenges in developing gross motor skills is obesity. According to Riskesdas data, 8 out of 10 children in Indonesia experience obesity, potentially caused by a lack of physical activity. (Tangse & Dimyati, 2021). Motor skills refer to the gradual changes in strength and the ability to perform movements through the interaction of caregiving and training or experience. Motor abilities can be categorized into two main types: gross and fine motor skills (Desiana & Khan, 2022). Gross motor skills involve large muscle movements that enable wide-ranging body motions and sometimes require the involvement of the entire body (Prawesti, 2020).

The Indonesian Ministry of Education and Culture revealed that various internal and external factors influence a child's motor development. Internal factors include aspects within the child, such as the nervous system, physical condition, high motivation, age, and gender (Sulistyo et al., 2021). External factors refer to everything from the child's surroundings and the teaching methods applied to influences from broader societal and cultural contexts (Sulistyo et al., 2021). Premature birth is another factor affecting gross motor development, as premature infants may experience delays due to underdeveloped muscle tone and insufficient early-life nutrition (Ananditha, 2017). The role of institutions and educators is also significant in developing children's motor skills by designing age-appropriate learning activities, providing practice opportunities, supporting control and coordination, creating a safe and challenging environment, appreciating individual abilities, offering suitable tools, ensuring equal opportunities for all children, and

encouraging diverse play activities that promote motor development (Irna et al., 2022).

Gross motor skills influence a child's future development, fostering confidence in their activities and affecting other developmental aspects. (Dinanti et al., 2023). Physical activities requiring coordination and concentration, such as sports, can enhance cognitive abilities, support brain development, and help children focus on other activities (Utami, 2021). Additionally, gross motor skills strengthen children's muscles and bones, reducing the likelihood of injuries during physical activities (Riswandi, 2021). Early development of gross motor skills prepares children to face future physical and mental challenges, as physical agility is closely linked to emotional resilience and problem-solving abilities (Dewi & Mailasari, 2020).

Preliminary observations conducted in kindergartens in Sungai Kunjang District, Samarinda, revealed that the gross motor skills of children aged 5-6 years are still in the early stages of development. This is evident from children's limited balance when jumping, their underdeveloped ability to throw objects at a target, and their difficulty balancing on one foot while holding an object. These findings highlight that their abilities are not yet fully optimized despite this age being critical for motor skill development. Therefore, this study is essential for assessing gross motor skills in children aged 5-6 years in Sungai Kunjang District, Samarinda, and evaluating the effectiveness of teacher assessments. Teachers often conduct evaluations that lack comprehensiveness due to time, resource, or knowledge constraints. The results aim to provide recommendations for optimizing children's motor development.

#### **B.** Literature Review

Several studies have investigated the development of gross motor skills in early childhood in Indonesia. One study conducted at TKQ An-Namlu in Karawang revealed that the gross motor skills of young children, particularly in strength, balance, and mobility, remain underdeveloped, with most children experiencing inadequate progress (Rahayu et al., 2023). Another study, titled The Influence of Creative Dance on the Development of Gross Motor Skills in Kindergarten Kemala Bhayangkari 03 Alai, found that while gross motor skills at TK Kemala Bhayangkari 03 Alai were not optimal, significant improvements were observed after incorporating dance activities (Utari & Yeni, 2020). Research by (Humaedi et al., 2021) Titled Gross Motor Skills of Early Childhood Reviewed from Geographical Aspects (Study on Early Childhood in Coastal and Mountainous Areas), highlighted that gross motor skills in early childhood are influenced by the environment, such as geographical conditions, nutritional intake, and access to play facilities. Children in coastal areas have better motor skills than those in mountainous regions. Another study, Profile of Gross Motor Skills of Children Aged 5-6 Years, found that the gross motor abilities of children at TK Dahlia in Ngrampal District vary. However, most children demonstrated significant progress based on established indicators (Sulistyo et al., 2021).

In the article Relay Games to Improve Gross Motor Skills of Children Aged 5-6 Years, relay games were deemed adequate and suitable for core learning activities at the kindergarten level, as they involve physical activities that enhance gross motor skills in children aged 5-6 years (Tangse & Dimyati, 2021). Similarly, research by (Rahayu et al., 2023) titled Effectiveness of Using Kiorroga Media Innovations on Gross Motor Skills in Early Childhood found that Kiorroga game media effectively improved gross motor skills through movement-based activities. Another study, The

Influence of Traditional Jump Rope Games on Gross Motor Skill Development in Children Aged 5-6 Years, concluded that traditional jump rope games significantly improved gross motor skills, particularly jumping abilities, in children aged 5-6 years at TK Negeri Pembina Surabaya (Anggraini et al., 2018). Additionally, the study Effectiveness of Modified Basketball Games on Gross Motor Skills of Children Aged 5-6 Years reported that introducing modified basketball activities significantly enhanced gross motor skills in children aged 5-6 (Reswari, 2021). In research titled Development of Traditional Gobak Sodor Game Media to Improve Gross Motor Skills in Children Aged 5-6 Years, the Gobak Sodor playmat product was shown to enhance gross motor skills in children aged 5-6 years (Erwanda & Sutapa, 2023). The study Improving Gross Motor Skills in Children Aged 5-6 Years Through Kreweng Ball Throwing Games at TK Negeri Pembina 1 Mojosari demonstrated that throwing kreweng balls effectively boosted gross motor skills among children aged 5-6 years through motivation, diverse media, and appropriate throwing techniques (Aprilianti & Setyowati, 2023).

The similarities between these studies and this research lie in their focus on the suboptimal gross motor skills of children aged 5-6 years. However, the differences pertain to the research location and sampling techniques, as this study uses purposive sampling. This research aims to investigate the progress of gross motor skills in children, aligned with the focus of previous studies. Providing stimulation through physical activities that positively support their growth and development is essential to optimize children's motor skills.

#### C. Method

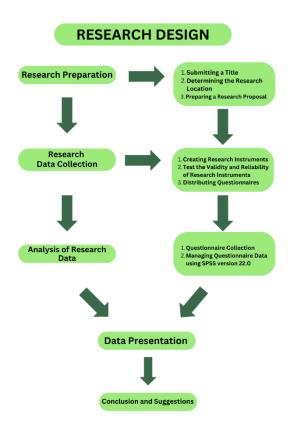


Figure 1. Research Design

This study falls into the category of quantitative research, which emphasizes the collection of information in the form of numbers. The method used is a survey to extract information and analyze the results obtained from samples selected from the population (Syahrizal & Jailani, 2023). This research aims to identify significant events, explore their distribution, and study the relationship between the factors involved. Survey research can be conducted on large or small populations (Syahrizal & Jailani, 2023). This study was conducted in August and September 2024, specifically in kindergartens in the Sungai Kunjang Subdistrict, Samarinda. The population in this study was 13 kindergartens in the Sungai Kunjang Subdistrict of Samarinda. The researcher used the purposive sampling technique to determine the sample in this study by setting the following criteria: the kindergarten is located in Sungai Kunjang Subdistrict, is an Islamic-based kindergarten, and uses the Merdeka curriculum. So, the samples in this study are two kindergartens: Kindergarten X and Kindergarten Y.

Data were collected using a questionnaire distributed to teachers directly, and teachers filled out the statements. Before being distributed, the questionnaire was validated through expert judgment and tested on 25 children aged 5-6 years at a different kindergarten in Samarinda. The questionnaire was aimed at teachers to determine children's gross motor skills based on their observations, given that teachers interact directly with children. Each teacher completed the questionnaire individually for each child so that one teacher would complete the questionnaire for 25 children. The validity and reliability tests on the 17 statement items in the research instrument showed that all statements were valid and reliable, so none had to be eliminated.

The indicators that researchers used were developed from the theory put forward by Suryaningrum et al., (2022), which states that the stages of gross motor skills of children aged 5-6 years include the ability to jump with alternating legs, riding a two-wheeled bicycle, skateboarding, doing laps, and making precise and controlled throws. The indicator reads that the child grasps the picture stick while jumping, imitates animal movements, throws the Nipah bracelet into the bottle according to the picture obtained, writes the word "pest," sticks the number, imitates the writing of the number, cuts according to the shape, sticks the picture stick into the hole, jumps with one foot, spins the number wheel, writes the number, sticks the picture in place, arranges the puzzle, ducks through the hula-hoop, sticks the collage, rolls the ball into the glass, and puts the geometry shape into the rope.

Maliyani explained that to analyze the data, each indicator was analyzed using percentage calculations to assess child development. The results will be grouped according to the predetermined assessment criteria based on the percentage obtained (Sulistyo et al., 2021). In assessing early childhood development, there are four categories used, namely (BB) Not Developing, (MB) Starting to Develop, (BSH) Developing as Expected, and (BSB) Developing Very Well (Sulistyo et al., 2021). The rating scale used is adjusted to the rating scale in PAUD; the categories are as follows: 1 (Not Yet Developing/BB), 2 (Starting to Develop/MB), 3 (Developing as Expected/BSH), and 4 (Developing Very Well/BSB).

## D. Findings

The following are the study results on the gross motor skills of children aged 5-6 years in kindergartens in the Sungai Kunjang sub-district of Samarinda, analyzed

based on each indicator. Table 1 shows the results of the validity test of the questionnaire items. Table 2 shows the results of the reliability test.

**Table 1. Validity Test Result** 

| Statement | r- Count | r- Table | Description |  |
|-----------|----------|----------|-------------|--|
| X1        | 0.964    | 0.3494   | Valid       |  |
| X2        | 0.964    | 0.3494   | Valid       |  |
| Х3        | 0.964    | 0.3494   | Valid       |  |
| X4        | 0.964    | 0.3494   | Valid       |  |
| X5        | 0.964    | 0.3494   | Valid       |  |
| X6        | 0.492    | 0.3494   | Valid       |  |
| X7        | 0.964    | 0.3494   | Valid       |  |
| X8        | 0.964    | 0.3494   | Valid       |  |
| X9        | 0.964    | 0.3494   | Valid       |  |
| X10       | 0.964    | 0.3494   | Valid       |  |
| X11       | 0.964    | 0.3494   | Valid       |  |
| X12       | 0.964    | 0.3494   | Valid       |  |
| X13       | 0.964    | 0.3494   | Valid       |  |
| X14       | 0.384    | 0.3494   | Valid       |  |
| X15       | 0.384    | 0.3494   | Valid       |  |
| X16       | 0.384    | 0.3494   | Valid       |  |
| X17       | 0.384    | 0.3494   | Valid       |  |

**Table 2. Reliability Test Result** 

| Number of<br>Statements | Cronbach's<br>Alpha | Requirement | Description |
|-------------------------|---------------------|-------------|-------------|
| 17                      | 0.969               | 0.6         | Reliable    |

Based on Tables 1 and 2, it can be seen that all statements on the 5-6 Year Old Children's Gross Motor Ability instrument are valid and reliable so that they can be continued to be used in research.

Researchers used frequency in the form of averages to determine the level of gross motor skills of children aged 5-6 years in Sungai Kunjang Samarinda District. The results of the frequency calculation can be seen as follows.

Table 3. Results of the Level of Gross Motor Skills of children aged 5-6 years

| Mean      | 24,3 |
|-----------|------|
| N Minimum | 17   |
| N Maximum | 34   |
| N         | 137  |

Based on the table above, it can be concluded that the gross motor skills of children aged 5-6 years can be seen from an average of 24.3. The average is obtained from an assessment of 17 indicators with a value range of 0-4. A score of 17 is the minimum score obtained by the child from 17 assessment indicators. This indicates that the child has the lowest total score among 137 children. While the value of 34 is

the maximum value obtained by the child from 17 assessment indicators. This shows that the highest total score achieved is 34, and the lowest is 17.

Table 4. Results of gross motor skills of 5-6-year-old children

| No | Item Observed                               | Average | Category |
|----|---|---------|----------|
| 1  | Grasping an illustrated stick while jumping | 1,54    | MB       |
| 2  | Imitating animal movements                  | 1,07    | MB       |
| 3  | Throwing a ring into a bottle               | 1,09    | MB       |
| 4  | Writing the word "pest"                     | 1,4     | MB       |
| 5  | Sticking numbers                            | 1,55    | MB       |
| 6  | Imitating written numbers                   | 1,36    | MB       |
| 7  | Cutting according to shapes                 | 1,05    | MB       |
| 8  | Sticking illustrated sticks into holes      | 1,5     | MB       |
| 9  | Hopping on one foot                         | 1,39    | MB       |
| 10 | Spinning a numbered pinwheel                | 1,07    | MB       |
| 11 | Writing numbers                             | 1,45    | MB       |
| 12 | Sticking images to the correct place        | 1,49    | MB       |
| 13 | Assembling puzzles                          | 1,55    | MB       |
| 14 | Bending to pass through a hula hoop         | 1,31    | MB       |
| 15 | Making a collage                            | 1,34    | MB       |
| 16 | Rolling a ball into a glass                 | 1,08    | MB       |
| 17 | Threading geometric shapes onto a string    | 1,28    | MB       |

Based on the table of research results of 137 students, it can be explained that the gross motor skills of children aged 5-6 years in Islamic-based kindergartens in Sungai Kunjang Samarinda District are in the Starting to Develop (MB) group with an average score. The value is obtained from the average of 17 existing indicators. So it can be decided that the average gross motor ability of children aged 5-6 years in Islamic-based kindergartens in Sungai Kunjang Samarinda Subdistrict is Starting to Develop with an average score of 1.33. This can also be seen from the average results listed on the bar chart.

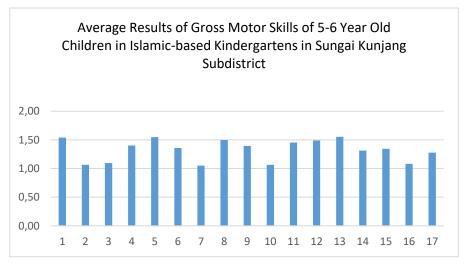


Figure 2. Bar diagram

This score indicates that they are in the "Starting to Develop" (MB) category, which means that the children's gross motor skills are still in the early stages of development. This assessment measured 17 indicators covering various aspects of gross motor development. The results of this study show that children at this age need extra attention to develop their gross motor skills well to grow optimally in the early childhood education environment at the kindergarten.

#### E. Discussion

Indonesian children between 5 and 6 years old are in a crucial development phase, especially in gross motor skills. Therefore, children in this age range need special attention and appropriate stimulation to support their physical development. Gross motor skills in early childhood are crucial aspects of human growth and development, and they are supported by the principles of Islamic teachings (Humairah, 2023). Education that must be given to children in Islam includes aqidah, worship, morals, and reading the Qur'an, which aims to instill the basis of correct belief, introduce Islamic worship from an early age, and teach morals through exemplary and respect for parents, teachers, and others (Suradi, 2018). Ali Bin Abi Talib (Sanenek et al., 2023) stated that children's education is divided into three stages that must be adjusted to their age; in the first seven years (0-7 years), children should be treated like kings, in the second seven years (8-14 years) treated like prisoners, and in the third seven years (15-21 years) treated as friends.

Al-Baihaqi recounted a hadith containing a dialog between Abu Rafi' and the Prophet Muhammad, which reads (Muslimin & Hosaini, 2019).

"Abu Rafi' reported: I asked the Messenger of Allah: Do we have obligations to our children as our children have obligations to us? The Messenger of Allah replied: Yes, the obligations of parents to their children are giving education in writing, swimming, archery, and earning a good living."

Through this hadith, the Prophet directs every parent to develop the motor potential of children to support the optimal development of their physical functions (Muslimin & Hosaini, 2019).

In Islam, children's physical development, including gross motor skills, is a mandate that parents must maintain and develop as part of their responsibility toward children (Sholeh, 2018). Islam encourages its people to maintain physical health because the body is a trust from Allah SWT.

In the Qur'an, Allah says. "And do not bring yourselves down to destruction..." (QS.Al-Bagarah:195).

This verse emphasizes the importance of keeping the body healthy and strong, including providing appropriate physical stimulation for optimal gross motor development in early childhood.

Research conducted at the Islamic-based kindergartens in Sungai Kunjang Subdistrict, Samarinda, found that children's gross motor skills at this early age are still at a very early stage of development. This shows that although this age period is significant in developing children's motor skills, these abilities have not yet developed optimally. Similar findings were also found in a study published in Potensia titled "Improving Children's Gross Motor Skills Through Playing with Hulahoop Media in

Group B Children of PAUD Al Syafaqoh Rejang Lebong Regency. This study mentioned that of the ten children who participated in the class, only four showed high motor skills and interest in physical activities, such as running, jumping, tiptoeing, and kicking the ball (Novitasari et al., 2019). The journal "Improving Children's Gross Motor Skills Through Uncle Doli Traditional Games at RA AL-IKHLAS" also states that many children at RA Al Ikhlas have difficulty performing gross motor movements properly, such as standing upright, walking, or running in balance, due to lack of stimulation (Humairah, 2023). These results confirm the importance of implementing more intensive interventions and more appropriate stimulation in supporting the development of gross motor skills in early childhood. This is a strong indicator that a more focused and structured approach is needed to ensure that children at this age can achieve their full motor potential, which can contribute to their overall development.

Based on observations in two Islamic-based kindergartens in the Sungai Kunjang Samarinda sub-district, it was found that while jumping on one leg, some children could not balance their bodies, causing them to fall. In another indicator, children could throw a nipah bracelet at a bottle, but it did not enter at a close distance. Based on previous research, it is explained that the factors that influence this are the development of the nervous system, physical or body conditions, motivating children, and environmental, psychological, age, and gender factors (Sulistyo et al., 2021). Research conducted by Sudjiono also revealed that the nervous system is the most determining factor in the smoothness of children's movements (Farida, 2016).

Based on investigations in two Islamic-based kindergartens located in Sungai Kunjang Subdistrict, Samarinda City, it was found that educational games are needed to support the development of gross motor skills in children. This study suggests that game activities designed for educational purposes can provide effective stimulation to hone children's gross motor skills at an early age. This finding aligns with the research results conducted at Sahabat Anugrah Kindergarten in Gowa Regency, which shows that children's gross motor skills have not developed optimally. This indicates the similarity of conditions in both areas, namely inequality in gross motor development in children. These findings suggest that attention to developing gross motor skills through more structured learning methods, including educational games, is needed to overcome similar problems in both locations (Humairah, 2023).

The purpose of education in kindergarten is to strengthen the development of children's physical skills, such as maintaining balance, increasing agility, and improving body flexibility. This is done with a comprehensive and optimal approach, especially when they start their education in kindergarten (Farida, 2016). Providing stimulation appropriate to children's age and developmental needs is essential to optimally support their growth and development process. The type of activities given to children can be games because games are one way of exploring the world; from the unknown to the known, children gather their experiences. Games are a means of education because they are fun for children. Play can benefit their physical, motor, and social-emotional development (Dini, 2022). Games can be done by using learning media in the form of educational games (Ritonga et al., 2023). This is also corroborated by the results of a study entitled Improving the Gross Motor Skills of 5-6 Year Old Children through Cricket Games (Rais & Sit, 2024), which states that cricket games can help children in Iftah Rizkiansyah Kindergarten develop their gross motor skills in early childhood. Similarly, a study entitled Development of Gotri Traditional

Games to Improve the Gross Motor Skills of Children Aged 5-6 at Paud Melati, Nyurlembang Village, Narmada District in 2021, based on the results of research that has been carried out, can be given that traditional got games can improve the gross motor skills of children aged 5-6 years at PAUD Melati (Putri et al., 2021).

In the kindergartens in Sungai Kunjang, Samarinda, several children were experiencing delays in developing gross motor skills, which were not in line with the developmental standards that should be achieved at that age. This condition reflects an urgent need for media or tools that can support the optimization of the gross motor development of these children. This study evaluated the motor skills of children aged 5-6 years in Sungai Kunjang Sub-district to support their growth and development more optimally.

## F. Conclusion

This study reveals that teachers should give greater attention to the development of gross motor skills in preschool-aged children. Supporting children in optimal physical coordination is crucial for their ability to engage in physical activities effectively. The primary focus is to enhance agility, balance, flexibility, and confidence in movement. Factors influencing children's motor skills include internal aspects such as their physical condition and motivation and external factors like the surrounding environment and the teaching techniques applied. Children aged 5-6 years require appropriate stimulation, and play serves as an effective medium to promote physical, motor, and socio-emotional development. Through play, children can explore their environment and accumulate valuable experiences, making educational play tools particularly beneficial for their growth. Based on the findings, it is recommended that educators adopt more innovative teaching strategies tailored to children's developmental needs. One of the suggested approaches involves incorporating educational games into the learning process. Future research should explore more in-depth teaching methods to optimize gross motor skill development in children aged 5-6. This would ensure that children meet developmental benchmarks and grow holistically in a supportive educational environment.

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