



# The Effect of Traditional Game Activities on Improving Gross Motor Skills of Fourth Grade Students at SD Negeri 86 Palembang

Amisel Tri Apriannisa

\*Corresponding Author: , e-mail: amisel@gmail.com

Faculty of Teacher Training and Education, Universitas PGRI Palembang, Indonesia

## Abstract

**Objectives.** This study aims to examine the effect of traditional game activities on improving gross motor skills among fourth-grade students at SD Negeri 86 Palembang. The study addresses the growing concern regarding the lack of structured physical activities in elementary school students and the underutilization of traditional games as a tool to support motor development.

**Materials and Methods.** This research employed a quasi-experimental method using a pretest-posttest control group design. The sample consisted of 26 students divided into an experimental group and a control group. The experimental group engaged in traditional games such as rope jumping and "bentengan" (a tag-and-run style game) over several sessions, while the control group followed regular physical education lessons without specific interventions. Gross motor skills were assessed using standard movement ability tests, and the data were analyzed using paired sample t-tests.

**Results.** The results showed a statistically significant improvement in the experimental group after the intervention, with a t-value of 7.896, exceeding the t-table value of 1.708 and a significance level of  $p = 0.000$  ( $p < 0.05$ ). This indicates that the traditional game activities had a substantial effect on enhancing gross motor skills such as balance, coordination, agility, and strength.

**Conclusions.** Traditional game activities are effective in improving the gross motor skills of elementary school students and offer a culturally relevant, enjoyable, and meaningful approach to physical education. They should be integrated more intentionally into school curricula to enhance physical development and preserve cultural heritage.

**Keywords:** traditional games, gross motor skills, elementary students, physical education, movement development

## Introduction

Traditional games are an essential part of Indonesia's cultural identity (Kuswoyo & Wasa, 2021), passed down through generations and embedded with educational and moral values such as discipline, honesty, cooperation, teamwork, and responsibility (Ashar et al., 2024). These games—often played collectively and requiring physical movement (Hussain & Cheong, 2022)—offer not only cultural enrichment but also serve as effective educational tools that can foster social interaction and physical development in children (Birri et al., 2020). Research has shown that participation in traditional games increases children's physical activity levels and enhances soft skills such as collaboration and perseverance (Abadi & Nugroho, 2024; Ismoyo et al., 2024; Shimray, 2024). Moreover, compared to sedentary or passive recreational activities, traditional games require dynamic movement and coordination, which are directly linked to the development of gross motor skills.

Gross motor skills involve large muscle groups and form the foundation for physical competence in daily life. These include fundamental movements such as walking, running, jumping, and maintaining balance (Newell, 2020). Such abilities are critical for children's overall physical development, self-confidence, and future participation in sports or physical tasks. However, there is growing concern over the decline of gross motor development in children today (Donnelly et al., 2016). Many elementary school students struggle with basic motor coordination due to a combination of modern lifestyle factors, including excessive screen time, limited outdoor play, and reduced opportunities for engaging in meaningful physical education (Pangrazi & Beighle, 2019).

In school contexts, traditional games are often underutilized in physical education curricula (Martínez-Santos et al., 2020). Many teachers view these games as purely recreational or cultural, without recognizing their full potential to develop physical literacy (Burton, 2018). Additionally, there is often a lack of structured integration of traditional games into formal lesson planning, leading to missed opportunities for enhancing motor skills in a fun, inclusive, and culturally relevant manner (Aboshkair, 2022).

This research specifically investigates whether the implementation of traditional games—namely rope jumping (*lompat tali*) and bentengan—can effectively improve gross motor skills such as coordination, balance, strength, and agility among fourth-grade students at SD Negeri 86 Palembang. These two games were selected based on their accessibility, cultural familiarity, and relevance to the physical demands associated with motor development. Rope jumping involves repetitive jumping and timing, which strengthens lower limb muscles and improves coordination and rhythm. Meanwhile, bentengan requires

sprinting, dodging, and quick changes in direction, making it ideal for enhancing agility and spatial awareness.

This study is grounded in the belief that traditional games, when properly structured and implemented in school physical education, can address the existing gap in physical development among children. The research seeks to provide empirical evidence on their effectiveness, while also promoting the preservation of cultural heritage through practical application in modern education. Ultimately, the study aims to inform educators, curriculum developers, and policymakers about the dual benefits—physical and cultural—of incorporating traditional games into elementary school settings.

By focusing on fourth-grade students—a critical age for motor development—this study responds to both developmental and pedagogical needs. The findings are expected to contribute to a more holistic understanding of how traditional games can be used as a strategic tool for improving gross motor skills and revitalizing culturally meaningful forms of physical activity in Indonesian schools.

## **Materials and Methods**

### **Study Participants.**

This study was conducted at SD Negeri 86 Palembang, involving all 26 fourth-grade students as participants. The participants consisted of 13 boys and 13 girls, divided evenly into two groups: the experimental group and the control group. The experimental group was exposed to traditional game-based activities, while the control group followed regular physical education sessions without additional treatment. The sampling technique used was total sampling, meaning the entire population of fourth-grade students was included in the study (Sugiyono, 2022).

### **Study organization.**

This research employed a quasi-experimental method using a pretest-posttest control group design. Prior to the intervention, both groups underwent a pretest using a gross motor skills assessment consisting of a 4 × 5 meter shuttle run and a vertical jump test. The experimental group participated in 16 learning sessions incorporating traditional games—lompat tali (rope jumping) and bentengan—aimed at enhancing students' gross motor abilities such as running, jumping, and maintaining balance. The control group continued their usual physical education lessons without any specific motor-skills-based treatment.

The instructional sessions focused on core physical components including coordination, balance, and agility. The intervention was carried out over several weeks, after

which both groups were assessed again using the same instruments as in the pretest. Instrument validity was confirmed by correlating the test results with existing motor skill criteria. Homogeneity testing between the groups prior to the experiment showed that the two groups were statistically comparable ( $\text{Sig. } 0.287 > 0.05$ ).

### **Statistical analysis.**

The data collected in this study were analyzed using both descriptive and inferential statistical methods. To ensure the appropriateness of the statistical tests, a normality test was first conducted using the Lilliefors method, which determined whether the distribution of the data was normal. Following this, a homogeneity test was applied using an F-test to verify whether the variance between the experimental and control groups was equal, thus ensuring the comparability of the groups. After confirming both normality and homogeneity, a paired sample t-test was used to evaluate the differences between pretest and posttest results within each group. This test assessed the effectiveness of the traditional games intervention in improving students' gross motor skills. The threshold for statistical significance was set at  $p < 0.05$ . The study was guided by two hypotheses: the null hypothesis ( $H_0$ ), which stated that traditional game activities have no significant effect on students' gross motor skill development, and the alternative hypothesis ( $H_1$ ), which posited that these activities do have a significant positive effect.

### **Results**

This study aimed to investigate the impact of traditional games—jump rope and fort game (bentengan)—on the gross motor skills of fourth-grade students at SD Negeri 86 Palembang. The intervention was carried out over several sessions, and pretest-posttest data were collected from a total of 26 participants. The results of the study indicate that traditional game activities significantly improved the gross motor skills of fourth-grade students at SD Negeri 86 Palembang. This is evidenced by the increase in the average score from 66.26 in the pretest to 80.46 in the posttest, as well as a t-value of 7.896, which exceeds the critical t-table value of 1.708 ( $p < 0.05$ ). Therefore, traditional games such as jump rope and fort play are proven to be effective instructional tools in physical education to enhance students' motor development.

*Normality Test*

Normality testing was conducted using the **Kolmogorov-Smirnov** method. The significance values for both the pretest and posttest data were greater than 0.05, indicating that the data were normally distributed.

**Table 1.** Normality Test Results

Data	Statistic	df	Sig. (p-value)
Pretest	0.154	26	0.116
Posttest	0.106	26	0.200

*Homogeneity Test*

The Levene's Test for equality of variances produced a significance value of 0.078, which is also greater than 0.05. This indicates that the data across the groups were homogeneous.

**Table 2.** Homogeneity Test Results

Based on	Levene Statistic	df1	df2	Sig. (p-value)
Mean	3.242	1	50	0.078
Median	3.070	1	50	0.086
Trimmed Mean	3.135	1	50	0.083

*Hypothesis Testing*

The paired sample t-test analysis yielded a calculated t-value of 7.896, which is higher than the critical t-table value of 1.708 with 25 degrees of freedom. This confirms a significant difference in gross motor skill performance before and after the intervention.

**Table 3.** Paired Samples t-Test

Comparison	Mean Difference	Std. Deviation	t	df	Sig. (2-tailed)
Posttest–Pretest	14.192	9.165	7.896	25	0.000

*Descriptive Statistics: Pretest and Posttest*

A descriptive analysis of pretest scores showed that the average score was 66.26, with only 7.69% of students classified in the “Good” category and 57.69% in the “Poor” category. After the intervention, the average score increased to 80.46, with 46.15% in the “Good” category and 19.23% in the “Very Good” category.

**Table 4.** Pretest Score Categories

Score Interval	Frequency	Percentage (%)	Category
91 - 100	0	0	Very Good
80 - 90	2	7.69	Good
70 - 79	6	23.08	Fair
60 - 69	15	57.69	Poor
< 60	3	11.54	Very Poor

**Table 5.** Posttest Score Categories

Score Interval	Frequency	Percentage (%)	Category
91 - 100	5	19.23	Very Good
80 - 90	12	46.15	Good
70 - 79	6	23.08	Fair
60 - 69	2	7.69	Poor
< 60	1	3.85	Very Poor

**Discussion**

The study’s results demonstrate that engaging in traditional games significantly enhanced gross motor skills among fourth-grade students. This was evidenced by the increase in mean pretest scores (66.26) to posttest scores (80.46), and a paired-sample t-value of 7.896, exceeding the critical value of 1.708 ( $p < 0.05$ ), indicating a statistically significant improvement.

These findings align with a 2024 meta-analysis by Abadi & Nugroho, which confirmed that traditional games consistently yield significantly better motor skill outcomes compared to non-game control groups ( $SE = 2.17$ ;  $p < 0.05$ ) (Abadi & Nugroho, 2024). Additionally, Gustian (2021) reported that a one-group pretest-posttest design using various traditional games produced a significant increase in motor skill scores among 126 elementary students ( $p < 0.05$ ) (Gustian, 2021). Our study extends this evidence by demonstrating similar outcomes with *lompat tali* and *bentengan* in a formal school setting, highlighting their effectiveness as culturally relevant tools for developing coordination, balance, strength, and agility within a structured physical education curriculum.

**Conclusions**

This study concludes that traditional games, specifically *lompat tali* (rope jumping) and *bentengan* (a tag-based game), have a significant positive effect on improving gross motor skills among fourth-grade students at SD Negeri 86 Palembang. The implementation of these games in physical education classes resulted in a substantial increase in average student performance, from a pretest mean of 66.26 to a posttest mean of 80.46. The paired-sample t-test value ( $t = 7.896$ ;  $p < 0.05$ ) further confirms the statistical significance of this improvement.

Traditional games not only support the development of physical attributes such as balance, coordination, agility, and strength, but also promote social and emotional learning through cooperative play and cultural engagement. These findings highlight the importance of incorporating culturally relevant and enjoyable physical activities into the elementary school curriculum to foster both physical development and student motivation.



It is recommended that physical education teachers integrate traditional games into their teaching strategies to enhance motor skill development in a meaningful and engaging way.

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