



The influence of traditional sports games on bullying behavior in elementary school students

La influencia de los juegos deportivos tradicionales en el comportamiento de acoso escolar en estudiantes de escuela primaria

Authors

Bambang Hermansah ¹
Rofi'ul Huda ²
Laelatul Arofah ³
Freddi Sarman ⁴
Hendri Gunawan ⁵
Wisman Wisman ⁶
Khairiyah Khadijah ⁷

¹ Universitas PGRI Palembang (Indonesia)

^{2, 3, 5, 6} Universitas Negeri Malang (Indonesia)

⁴ Universitas Jambi (Indonesia)

⁷ Universitas Riau (Indonesia)

Corresponding author:
Bambang Hermansah
bambanghermansah@univpgri-palembang.ac.id

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Abstract

Introduction: Bullying remains a major issue in primary education because it affects children's emotional well-being, peer relationships, and engagement in learning. Research on the use of traditional sports games as a strategy to reduce bullying behavior is still limited.

Objective: This study examined the effect of traditional sports games on bullying behavior among elementary school students in South Sumatra, Indonesia.

Method: A pre-experimental one-group pretest-posttest design was used with 43 students. Bullying behavior was measured using an adapted 17-item version of the *Illinois Bullying Scale*, covering bully, fight, and victimization dimensions. The intervention involved three traditional sports games: hide-and-seek, hopscotch, and rubber band jumping.

Results: Bullying behavior decreased after the intervention. At pretest, 24 students (56%) were in the moderate category and 19 (44%) were in the high category. At posttest, 34 students (79%) were in the moderate category, 9 students (21%) were in the low category, and none remained in the high category. The mean score decreased from 60.51 to 51.02. The Wilcoxon signed-rank test showed a significant difference between pretest and posttest scores ($z = 5.711$, $p < .001$).

Conclusion: Traditional sports games show potential as a practical, low-cost, and culturally relevant strategy for reducing bullying behavior in elementary school students.

Keywords

Traditional sports games; bullying behavior; elementary school students; bullying prevention; play-based intervention; traditional play.

Resumen

Introducción: El acoso escolar sigue siendo un problema relevante en la educación primaria, ya que afecta el bienestar emocional de los niños, sus relaciones con los compañeros y su participación en el aprendizaje. Aún son limitadas las investigaciones sobre el uso de juegos deportivos tradicionales como estrategia para reducir esta conducta.

Objetivo: Examinar el efecto de los juegos deportivos tradicionales sobre la conducta de acoso escolar en estudiantes de primaria de Sumatra del Sur, Indonesia.

Método: Se utilizó un diseño preexperimental de un solo grupo con pretest y posttest en 43 estudiantes. La conducta de acoso se evaluó mediante una versión adaptada de 17 ítems de la *Illinois Bullying Scale*, que incluye las dimensiones de agresor, pelea y victimización. La intervención consistió en tres juegos deportivos tradicionales: escondidas, rayuela y salto con banda elástica.

Resultados: La conducta de acoso disminuyó tras la intervención. En el pretest, 24 estudiantes (56%) se ubicaron en la categoría moderada y 19 (44%) en la alta. En el posttest, 34 estudiantes (79%) se situaron en la categoría moderada, 9 (21%) en la baja y ninguno permaneció en la alta. La media descendió de 60.51 a 51.02. La prueba de Wilcoxon mostró una diferencia significativa ($z = 5.711$, $p < .001$).

Conclusión: Los juegos deportivos tradicionales muestran potencial como estrategia práctica, económica y culturalmente pertinente para reducir el acoso escolar en primaria.

Palabras clave

Juegos deportivos tradicionales; conducta de acoso escolar; estudiantes de escuela primaria; prevención del acoso escolar; intervención basada en el juego; juego tradicional.

Introduction

Bullying remains a major concern in primary education because it disrupts children's emotional security, peer relationships, and engagement with school. Far from being a minor disciplinary issue, bullying reflects repeated patterns of aggression, exclusion, and power imbalance that can shape how children experience learning environments (Izadi and Hart 2024; Tulenbaevna et al. 2025). Global evidence continues to show that peer violence and victimization affect a substantial proportion of school-age children, making bullying prevention a continuing priority for education and child well-being policy.

The consequences of bullying are both immediate and cumulative. Children who are exposed to bullying are more likely to report psychological distress, social withdrawal, low self-esteem, psychosomatic complaints, and reduced academic functioning (Smokowski et al. 2014). At the same time, children who engage in bullying behavior are also at risk for maladaptive social development, conduct problems, and persistent interpersonal difficulties (Bolduc et al. 2025). These dual consequences underscore the need for interventions that do not merely suppress misbehavior, but actively strengthen healthier forms of peer interaction and emotional regulation.

A growing body of research suggests that school-based anti-bullying interventions can be effective, but their success depends heavily on context, implementation quality, and the extent to which they reshape everyday peer processes. Programs that rely only on rules or verbal warnings often have limited impact when they are not matched by meaningful opportunities for children to practice cooperation, fairness, and respect in real interaction (Płoszaj, Firek, and Cunningham 2025; Truelove et al. 2026). This issue is particularly important in elementary school, where children learn social behavior not only through instruction, but also through repeated shared activity (Dai 2025). For this reason, play-based and interaction-centered approaches deserve greater attention within bullying prevention research.

However, the concept of games in education should not be understood merely as recreational activity. Traditional games can be viewed as structured social-motor situations in which children interpret rules, negotiate roles, respond to peers' actions, and learn how to manage cooperation, opposition, and role exchange. Research on traditional games shows that motor behavior is shaped by the internal logic of the game, meaning that children's actions are organized through rule-bound interaction rather than random movement alone. In this sense, games become educational spaces where social conduct is practiced in action, not only explained verbally.

Physical activity offers a promising avenue in this regard. Recent evidence indicates that movement-based activities can contribute to social-emotional learning, self-regulation, and peer engagement, while also showing meaningful relationships with bullying-related outcomes in children and adolescents (Latino, Tafuri, and Tafuri 2025). For younger students, physically active play may be especially relevant because it integrates emotional, social, and behavioral learning within an experience that is developmentally natural and intrinsically motivating (Banjar, Sulaimani, and Bagadood 2025; Jayanti, Evendi, and Supriandi 2025; Oduro Owusu, Kankam, and Gil 2026). This is particularly important because games are not only physical tasks; they are also systems of communication. Through play, children must read signals, respect turns, respond to uncertainty, and regulate their behavior within a shared symbolic and social structure. Such processes are closely related to the development of empathy, self-control, fairness, and peaceful coexistence.

Within the Indonesian elementary school context, traditional sports games may therefore provide a particularly suitable intervention format (Nasution et al. 2025; Sukmana 2025; Zhou et al. 2025). These games are culturally familiar, low-cost, easy to organize, and deeply social in character. More importantly, their pedagogical value lies in the way they place children in repeated situations of mutual dependence, rule compliance, negotiation, and conflict management. Traditional games do not simply entertain children; they train them to participate in shared social orders, where actions have consequences for others and where cooperation and opposition must be regulated. This theoretical perspective is highly relevant to bullying prevention, because bullying often emerges through exclusion, domination, ridicule, and the misuse of interpersonal power (Walton 2005). By contrast, well-structured traditional games encourage inclusive participation, reciprocal responsiveness, and respect for agreed rules.



In the present study, three games were selected—hide-and-peek (*sumputan*), hopscotch (*cak engkling*), and rubber band jumping (*lompat karet* or *yeye*)—because they require turn-taking, cooperation, discipline, self-control, and mutual responsiveness. Hide-and-peek promotes inclusion and role exchange, hopscotch emphasizes patience and rule compliance, and rubber band jumping encourages teamwork and peer support. Viewed from this perspective, these games are not only recreational practices but also pedagogical tools that organize children’s motor communication, social participation, and emotional regulation in ways that may reduce bullying behavior.

Against this background, the present study aimed to examine the effect of traditional sports games on bullying behavior among elementary school students in South Sumatra, Indonesia (Agus, Samsudin, and Iman 2021). Using a one-group pretest-posttest design, the study assessed whether students’ bullying behavior scores would decrease following participation in the intervention (Maldybek 2025; Sukmana 2025; Syamsudin et al. 2025; Zalmansyah et al. 2026). By grounding the intervention not only in physical activity but also in the educational theory of traditional games as social-motor and value-laden practices, this study seeks to contribute to the literature on practical, culturally grounded, school-feasible, and developmentally appropriate strategies for bullying prevention in elementary education.

Method

Participants

The participants in this study were 43 elementary school students from a public elementary school in South Sumatra, Indonesia, all of whom completed both the pretest and the posttest. The students were aged between 11 and 13 years, with a mean age of 11.74 years ($SD = 0.73$). In terms of gender, 24 students (55.8%) were female and 19 students (44.2%) were male.

Study Design

This study employed a pre-experimental one-group pretest-posttest design to examine the effect of traditional sports games on bullying behavior among elementary school students (Leedy and Ormrod 2019). In this design, students’ bullying behavior was measured before the intervention (pretest) and again after the intervention (posttest) to determine whether participation in the games was associated with changes in bullying behavior.

Procedure

The intervention consisted of three traditional sports games: hide-and-peek (*sumputan*), hopscotch (*cak engkling*), and rubber band jumping (*lompat karet* or *yeye*). These games were selected because they involve physical activity, peer interaction, cooperation, turn-taking, discipline, and respect for rules (Agus et al. 2021). As such, they were used as a play-based social intervention aimed at reducing bullying behavior among children.

Data collection was conducted in two stages. First, the bullying behavior scale was administered as a pretest before the intervention began. Next, students participated in the traditional sports games intervention. After the intervention was completed, the same instrument was administered again as a posttest to measure any changes in bullying behavior.

Bullying behavior was measured using the 17-item Illinois Bullying Scale (IBS) as developed and validated by Shujja and Atta (2011) and Atta (2011). The scale consists of three dimensions: Bully, Fight, and Victimization. In the original validation study, the instrument demonstrated satisfactory psychometric properties, including acceptable construct validity and internal consistency. In the present study, all items were scored on a five-point Likert scale, resulting in a total score range from 17 to 85, with higher scores indicating higher levels of bullying behavior. For descriptive purposes, the scores were classified into low, moderate, and high categories.

Data Analysis

The data were analyzed using descriptive and inferential statistics with JASP Beta (van Doorn et al. 2021). Descriptive statistics included frequencies, percentages, score ranges, means, and medians. Be-

fore conducting the main hypothesis test, the normality of the paired pretest-posttest scores was examined using the Shapiro-Wilk test. Because the data did not meet the assumption of normality, the Wilcoxon signed-rank test was used as the primary inferential analysis to determine whether there was a significant difference between pretest and posttest scores. The paired-samples t-test was also reported as a supplementary analysis.

Results

Description of Research Findings and Hypothesis Testing

Description of Research Findings

Table 1 presents the distribution of students' bullying behavior categories before and after the traditional sports games intervention. Prior to the intervention, no students were classified in the low category. Most students were in the moderate category (24 students, 56%), while the remaining 19 students (44%) were in the high category. These results indicate that, before the intervention, students' bullying behavior was predominantly at moderate and high levels.

Table 1. Categories of Students' Bullying Behavior Before and After the Traditional Sports Games Treatment

Category	Interval	Pretest		Posttest	
		Frequency	Percentage	Frequency	Percentage
Low	17-39	0	0	9	21
Moderate	40-62	24	56	34	79
High	63-85	19	44	0	0
Total		43	100	43	100

Following the intervention, the distribution shifted noticeably. A total of 9 students (21%) were classified in the low category, 34 students (79%) were in the moderate category, and no students remained in the high category. This pattern indicates a downward shift in bullying behavior after participation in the traditional sports games. Overall, the findings suggest that the intervention was associated with a reduction in students' bullying behavior, as shown by the elimination of the high category and the emergence of the low category at posttest.

Figure 1. Histogram of Students' Bullying Behavior Pretest and Posttest Scores

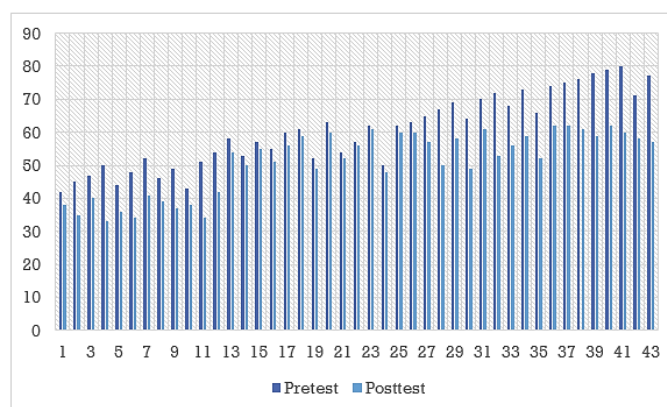


Figure 1 shows the distribution of students' bullying behavior scores at pretest and posttest. Overall, posttest scores were lower than pretest scores for most students, indicating a reduction in bullying behavior following the traditional sports games intervention. The pretest scores ranged from 42 to 80, whereas the posttest scores ranged from 33 to 62, suggesting an overall downward shift in scores after the intervention.

This pattern is also reflected in the measures of central tendency. The mean score decreased from 60.51 at pretest to 51.02 at posttest, while the median declined from 61 to 54. In addition, the average reduction in scores was 9.49 points, with individual decreases ranging from 1 to 20 points. Taken together, these results indicate that students tended to report lower levels of bullying behavior after participating in the intervention.

Figure 2. Three traditional sports games used in the intervention: hide-and-seek (sumputan), hopscotch (cak engkling), and rubber band jumping (lompat karet or yeye).



Hypothesis Testing

Table 2 presents the comparison of students' bullying behavior scores between pretest and posttest using the paired-samples *t*-test and the Wilcoxon signed-rank test. Both analyses showed a statistically significant difference between pretest and posttest scores. The paired-samples *t*-test indicated a significant difference, $t(42) = 10.23$, $p < .001$, with a mean difference of 9.488 and a large effect size ($d = 1.560$).

Table 2. Paired Samples T-Test

Measure 1	Measure 2	Test	Statistic	z	df	p	Location Parameter	SE Difference	Effect Size	SE Effect Size
Pretest	- Posttest	Student	10.23		42	< .001	9.488	0.928	1.560	0.130
		Wilcoxon	946.00	5.711		< .001	9.500		1.000	0.173

Note. For the Student *t*-test, effect size is given by Cohen's *d*. For the Wilcoxon test, effect size is given by the matched rank biserial correlation.

Note. For the Student *t*-test, location parameter is given by mean difference *d*. For the Wilcoxon test, location parameter is given by the Hodges-Lehmann estimate.

Because the normality assumption was not met, the Wilcoxon signed-rank test was used as the main basis for interpretation. The result showed a significant difference between pretest and posttest scores, $W = 946.00$, $z = 5.711$, $p < .001$. The Hodges-Lehmann estimate was 9.500, indicating that bullying behavior scores decreased by approximately 9.5 points after the intervention. The effect size for the Wilcoxon test was 1.000, indicating a very large effect. These findings suggest that the traditional sports games intervention was associated with a substantial reduction in students' bullying behavior.

Discussion

The present study showed that students' bullying behavior declined after participation in three traditional sports games (Nasution et al. 2025; Zalmansyah et al. 2026). This pattern was evident not only in the categorical distribution of scores, where the high category disappeared at posttest, but also in the reduction of the mean score from 60.51 to 51.02 and in the significant Wilcoxon result. Taken together, these findings suggest that the intervention was associated with a meaningful downward shift in bullying behavior among the participating elementary school students.

A notable aspect of the findings is the direction of change across the score distribution. Before the intervention, nearly half of the students were classified in the high category, whereas after the intervention no students remained in that range and 21% moved into the low category. This pattern is important because it suggests that the intervention did not merely reduce average scores; it also shifted students away from the most problematic behavioral range (Jin 2025; Plümacher et al. 2025). In practical terms, this indicates that traditional games may be capable of changing everyday peer interaction patterns in ways that reduce overt bullying tendencies.

One plausible explanation is that traditional sports games create repeated opportunities for children to rehearse prosocial behavior in a naturally motivating context. Unlike lecture-based prevention approaches, these games require turn-taking, cooperation, self-restraint, and responsiveness to peers while children are actively engaged (Maldybek 2025; Samakphol et al. 2026; Syamsudin et al. 2025). This finding can be further understood through the perspective that traditional games are not merely recreational activities, but structured social-motor situations in which children learn to act within rules, interpret others' actions, and regulate their own behavior in relation to peers (Pic, Lavega-Burgués, and March-Llanes 2019; Pic and Navarro-Adelantado 2022). In this sense, the educational value of games lies in the fact that social conduct is practiced through action, not only explained verbally (Vicente and Pic 2023). Evidence from school bullying research indicates that interventions tend to be more effective when they alter peer processes and the everyday social climate of school life, while research on physical activity and social-emotional learning suggests that movement-based activities can strengthen emotional regulation and interpersonal competence (McCoy et al. 2026; Veenstra 2026).

The specific characteristics of the three games used in this study also help explain the observed reduction. Hide-and-seek promotes inclusion and role flexibility, because every child alternates between seeking and hiding; hopscotch requires patience, concentration, and rule compliance; and rubber band jumping emphasizes mutual encouragement, coordination, and shared success. These features are highly relevant to bullying prevention because bullying often involves exclusion, impulsivity, dominance, and ridicule (Antoniadou and Kokkinos 2025). By contrast, the games used in this intervention repeatedly positioned students in situations where cooperation and rule-bound interaction were more adaptive than aggression or intimidation. This interpretation is consistent with studies showing that traditional games shape motor behavior through patterned interaction and that their internal logic encourages children to manage relationships of cooperation, opposition, and role exchange in socially meaningful ways (Pic et al. 2019; Vicente and Pic 2023).

Another strength of the intervention is its cultural and pedagogical fit. Traditional games are familiar, low-cost, and easy to implement in school settings, which may increase participation and reduce resistance among children (Dube et al. 2025; Sukmana 2025). Their cultural familiarity also means that the intervention is not experienced as an external disciplinary program, but as a meaningful and enjoyable social activity. Recent work on traditional games and children's development has similarly highlighted their potential to support cooperation, character formation, and social adjustment, particularly when they are embedded in collective play (Syamsudin et al. 2025; Zalmansyah et al. 2026). From this perspective, traditional games can also be seen as pedagogical spaces in which children learn to negotiate rules, respond to uncertainty, and manage conflict in ways that support peaceful coexistence (Sáez de Ocariz, Lavega-Burgués, and Pic 2026).

At the same time, the findings should be interpreted with balance. Although the intervention eliminated the high category, most students remained in the moderate category at posttest. This suggests that traditional sports games may reduce the intensity of bullying behavior, but may not fully transform peer relations in a short period when used as a stand-alone strategy (Demirtaş-Zorbaz et al. 2025; Lucciarini et al. 2025). This interpretation is consistent with broader bullying-prevention literature showing that stronger and more durable effects are usually obtained when student-focused activities are complemented by teacher practices, classroom norms, and wider school climate measures. Thus, while traditional games appear promising as a culturally grounded entry point, they should ideally be integrated with broader educational efforts rather than treated as a single, sufficient solution.

Several limitations also need to be acknowledged. First, the study used a one-group pretest-posttest design without a control group, so alternative explanations such as maturation, testing effects, or concurrent school experiences cannot be completely ruled out. Second, the sample consisted of only 43 stu-

dents from one public elementary school in South Sumatra, which limits the generalizability of the findings. Third, although the adapted 17-item Illinois Bullying Scale was grounded in prior psychometric evidence, the reported validity and reliability indices came from the Urdu validation study, and stronger international reporting would require internal consistency evidence from the present Indonesian sample as well.

Future studies should therefore evaluate traditional-game interventions using more rigorous designs, including comparison groups, larger multisite samples, and follow-up assessments to test whether behavioral changes persist over time. It would also be useful to examine whether different games influence different dimensions of bullying, such as direct aggression, conflict behavior, or victimization, and whether their effects are amplified when combined with teacher-led reflection or social-emotional learning components. Future research may also explore more explicitly how the internal logic of games, including role exchange, motor communication, and conflict regulation, contributes to children's social learning outcomes (Pic and Navarro-Adelantado 2022; Vicente and Pic 2023). Even with these limitations, the present study offers a strong practical implication: culturally grounded, movement-based activities may serve as an accessible and developmentally appropriate strategy for reducing bullying behavior in elementary schools.

Conclusions

This study concludes that participation in traditional sports games was associated with a significant reduction in bullying behavior among elementary school students. Following the intervention, students' bullying scores decreased, the proportion of students in the high category declined from 44% to 0%, and a low category emerged at posttest. This pattern was further supported by the Wilcoxon signed-rank test, which showed a statistically significant difference between pretest and posttest scores. These findings suggest that traditional sports games may serve as a meaningful play-based strategy for reducing bullying behavior in elementary school settings.

However, the findings should be interpreted with caution because the study employed a one-group pretest-posttest design and involved a relatively small sample from a single school. Despite these limitations, the study offers an important practical implication: culturally familiar, low-cost, and movement-based activities can be incorporated into school programs to foster cooperation, self-control, and positive peer interaction. Therefore, traditional sports games have potential not only as recreational activities, but also as an educational approach to bullying prevention among children.

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Authors and translators' details:

Bambang Hermansah	bambanghermansah@univpgri-palembang.ac.id	Author
Rofi'ul Huda	rofiul.huda.2207219@students.um.ac.id	Author / Translator
Laelatul Arofah	laelatul.arofah.2201119@students.um.ac.id	Author
Freddi Sarman	freddisarman@unja.ac.id	Author
Hendri Gunawan	hendri.gunawan.2204319@students.um.ac.id	Author / Translator
Wisman Wisman	wisman.2202119@students.um.ac.id	Author / Translator
Khairiyah Khadijah	khairiyah.khadijah@lecturer.unri.ac.id	Author