

Physical Education Learning Model in Combating Bullying Among Primary School Students

Yudha Munajat Saputra¹, Enjang Yusup Ali^{2*}, Mochamad Yamin Saputra¹

¹Sport Science, Universitas Pendidikan Indonesia, Bandung, Indonesia, ²Elementary Teacher Education, Universitas Pendidikan Indonesia, Bandung, Indonesia. *Corresponding Author's Email: enjang@upi.edu

Abstract

Bullying is still a big problem in primary schools and is a big threat to kids' safety and health. The objective of this study was to create and assess an anti-bullying Physical Education (PE) learning model intended to mitigate bullying behavior, enhance empathy, and diminish aggressiveness among primary school pupils. A quasi-experimental pretest-posttest control group design was utilised, encompassing 555 children from grades 3 to 6, intentionally selected from various schools. These students were drawn from 4 primary schools in West Java Province, including urban, border-area, and rural contexts, selected using purposive sampling. The participants were categorized into an experimental group ($n = 278$), which received an eight-week anti-bullying PE intervention, and a control group ($n = 277$), which received regular PE lessons. Data were collected using the Olweus Bullying Scale, Basic Empathy Scale, and Aggressiveness Questionnaire, and analyzed through paired and independent t-tests. Results showed significant improvements in the experimental group compared to the control group: bullying behaviour decreased among perpetrators, victims, and bystanders ($p < 0.01$); empathy increased in both cognitive and affective dimensions ($p < 0.01$); and aggressiveness declined across physical, verbal, anger, and hostility dimensions ($p < 0.01$). These findings indicate that the anti-bullying PE model effectively promotes prosocial behavior, emotional regulation, and safer learning environments. The study highlights the broader potential of PE to foster not only physical fitness but also character development aligned with social-emotional learning. Integrating cooperative play, reflection, and value-based sportsmanship into PE curricula can nurture inclusive, empathetic, and bullying-free school cultures.

Keywords: Aggressiveness, Bullying Prevention, Empathy, Physical Education, Primary School.

Introduction

A few schools have recently been not able to improve the school environment. Students are bullying their peers, younger classmates, others in society, and even family members, which is quite alarming and falls into the emergency category (1-3). The National Commission for Child Protection's study makes it clear that we need effective intervention programs and a better knowledge of the psychological factors that lead to bullying. Recent monitoring reports in Indonesia indicate a worrying increase in school-related violence, including bullying, over the past five years. According to national educational reports, cases of violence in educational settings reported by the Indonesian Education Monitoring Network (JPPI) rose from 91 cases in 2020 to 573 cases in 2024, with a substantial proportion involving bullying behaviors. Although these figures are reported through official complaint channels and may not fully represent all schools, they highlight a growing trend of school violence that requires urgent

preventive strategies. Bullying is also recognized internationally as a pervasive problem affecting children's well-being and learning environments, with global data showing that a significant proportion of school-aged children experience peer victimization in various educational settings (4). This upward trend is clearly illustrated in Figure 1, which shows a consistent annual increase in reported bullying cases from 2020 to 2024. These results suggest that people may be becoming more conscious and responsive, but we still need to be careful and do more research (5, 6). We got our data from reported instances, but we think that a lot of bullying goes unreported, which means that there are incidences of all kinds that aren't included and people who are harmed aren't counted (7). It has been reported that 10–16% of Indonesian students experience teasing, exclusion, or physical aggression such as being hit, kicked, or pushed at least once a week (1, 8).

Bullying is a problem that happens in practically

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every school around the world, according to past studies. There are problems like this in every country, and they don't stop at national, social, or racial lines (9, 10). Teachers' support systems aren't the best way to stop bullying. The problem is that the learning model isn't clear enough, which makes it hard to understand. Also, the existing methodologies don't look at the small details of the learning process (3, 11). To help students grow, it's

important to combine different things, like getting them to be physically fit, look at the spiritual side of life, learn outdoor skills, spend time on hobbies, build their self-confidence and self-esteem, think about their values and lifestyles, learn about and appreciate the ecology of the natural world, and improve Civil Group Interaction and Cooperation (6, 12).

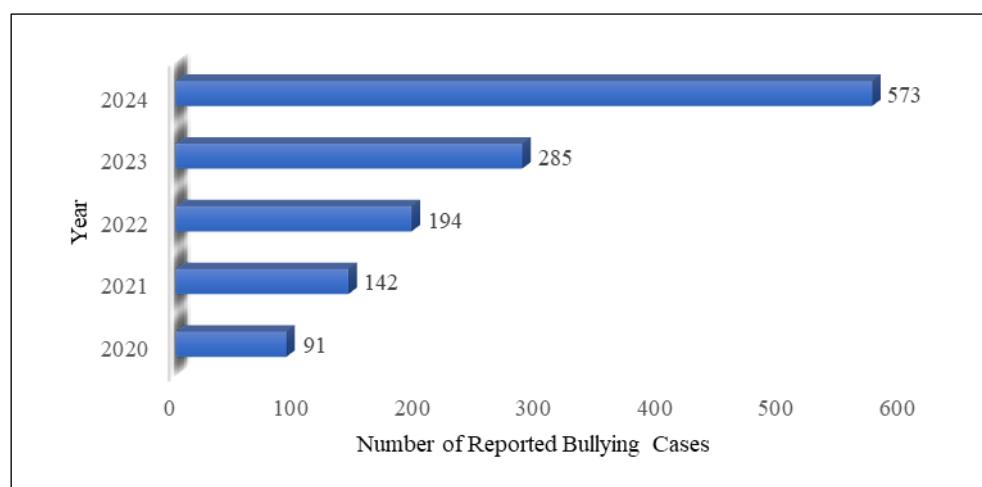


Figure 1: Bullying Cases in Indonesia from 2020 to 2024

Physical education and games can help stop bullying in schools, especially in primary schools (1, 13). A good Physical Education program can help minimise the number of bullying incidents (14). Studies demonstrate that competition and collaboration in physical education can help children get along better and make the school a more welcoming place, which can help stop bullying (12, 15). Cooperative physical activity programs also help children learn to work together and feel what other people are going through (16, 17). Physical Education helps kids learn social skills that they can use in the classroom, making the school a more welcoming place for everyone (12, 18). According to previous study, kids who do structured physical activities are less likely to be involved in bullying as either a perpetrator or a victim (3, 19). Gamification in Physical Education is a promising way to get students more involved while also dealing with social concerns like bullying (20). This strategy gets pupils moving more and makes them feel like they belong at school (21, 22). For instance, programs that use interactive games have been found to greatly raise kids' awareness and empathy for their classmates, which lowers the number of bullying incidences (3, 23). Schools that use a full Physical Education

curriculum along with gamified learning say that students' physical health, emotional health, and behavior have all gotten better, which has led to fewer cases of bullying and aggression (24, 25). With this in mind, the goal of this study is to: 1. Create a learning paradigm that works to cut down on bullying in primary schools. 2. Look at the difference in levels of bullying between the experimental group (which used the Physical Education learning model as an intervention) and the control group (which used regular Physical Education instruction). 3. Look into how the Physical Education learning model affects how much kids care about others, work together, and are aggressive.

The following hypothesis was created to see if the physical education (PE) learning paradigm can help reduce bullying among elementary school students. There are hypothesis pairs of zero (H_0) and alternative (H_1) to ensure the statistics are correct: H_0 : There was no significant difference in bullying behavior between the students of the experimental group (who followed the anti-bullying PE model) and the control group students (who followed the traditional PE). H_1 : The bullying behavior of students in the experimental group was significantly lower than in the control

group. Reason: The systematic application of anti-bullying strategies in PE learning is estimated to be able to reduce the frequency of bullying behavior through the creation of positive classroom norms and the strengthening of social sanctions for aggressive actions. Previous studies have shown that physical activity-based interventions can reduce incidents of bullying in schools (26, 27). H02: There was no significant difference in empathy levels between the students of the experimental group and the control group. H12: The students' empathy levels in the experimental group were significantly higher than in the control group. Reason: Cooperative and reflective physical activity in the anti-bullying PE model is thought to increase the sense of community and the ability to understand the feelings of others. Students who engage in team games and empathetic discussions will be better able to feel the emotions of their peers, so it is expected that the experimental group will show higher empathy (26, 27). H03: There was no significant difference in the level of aggressiveness between the students of the experimental group and the control group. H13: The level of aggressiveness of students in the experimental group was significantly lower than in the control group. Reason: The anti-bullying PE learning model emphasizes the value of sportsmanship and emotion management. Through structured physical activities that positively divert energy and exercise in controlling emotions, students' aggressiveness is expected to decrease. In other words, students who participate in the intervention will be able to behave more calmly and in control than students in conventional PE learning (26, 27).

Methodology

Research Design

This study used a quasi-experimental approach with a pretest-posttest control group design. In this design, there were two treatment groups: the experimental group that received the intervention of the anti-bullying PE learning model, and the control group that followed the conventional PE learning without additional intervention (24, 28). Measurements were taken twice, namely before the intervention (pretest) and after the intervention (posttest), to assess changes in students' bullying behavior, empathy, and aggressiveness. This quasi-experimental design

was chosen because it is suitable for program evaluation in a school environment that does not allow random assignment of subjects, but is still able to maintain the internal validity of the research (29, 30).

Respondent

The respondents in this study were 555 elementary school students in grades 3 to 6 from several schools selected by purposive sampling (31). The inclusion criteria for respondents include students who have a history of involvement in bullying either as perpetrators, victims, or witnesses identified through the results of the bullying scale at the time of the pretest. Students who met these criteria were then divided into an experimental group ($n = 278$) and a control group ($n = 277$). The division of the groups was carried out in such a way that the basic characteristics of the students were relatively balanced between the experimental and control groups.

Instruments and Data Collection

This study used three main instruments to measure bound variables according to the focus of the study, namely bullying behavior, empathy, and aggressiveness of students. The three instruments are:

Scale Bullying (Olweus): This instrument measures the tendency and frequency of bullying behavior in schools. The scale includes indicators of student involvement in the role of perpetrators, victims, and witnesses of bullying, as well as students' responses to bullying situations in the classroom. The higher the score on the perpetrator, victim, or witness subscale, indicates the more frequent or intense the student's involvement in the role.

Basic Empathy Scale: The instrument is in the form of a standard questionnaire that measures the level of empathy of students, consisting of cognitive aspects (the ability to understand other people's feelings/perspectives) and affective aspects (the ability to feel other people's emotions and concern for the suffering of others). Higher empathy scores reflect students have better social-emotional sensitivity and concern for others (32).

Aggressiveness Questionnaire: This instrument measures the level of student aggressiveness, covering various dimensions such as physical aggression (the act of physically attacking), verbal aggression (hurtful words), anger (angry emotions experienced), and hostility

(negative/hostile attitude towards others). A high aggressiveness score indicates a student's tendency to react aggressively (both physically and verbally), have a level of anger that is difficult to control, and a hostile attitude.

The data collection procedure is carried out in two main stages, namely pretest and posttest. Pretest were carried out before intervention in both groups to obtain baseline data on all three variables (bullying, empathy, aggressiveness). Furthermore, the experimental group underwent an anti-bullying PE model intervention for ±8 weeks, while the control group carried out regular PE learning. After the intervention period ended, a posttest was carried out to both groups with the same instrument as the pretest to measure the changes that occurred. All questionnaires and research scales are given to students in the classroom with the assistance of teachers and researchers, following the implementation protocol that has been set. Classroom teachers and PE teachers help ensure each student understands the statements in the questionnaire and fills them out honestly. Instrument charging time ranges from 30–45 minutes in a class session.

Data Analysis

Before the analysis of the effectiveness of the intervention, the data from the pretest and posttest results were first tested for statistical assumptions. The distribution normality test was carried out with the Shapiro-Wilk test, while the homogeneity test of variance between groups was carried out with the Levene test. The results of

both tests showed a significance value of $p > 0.05$ for all variables in both the pretest and posttest, which means that the data were distributed normally and the variance between the experimental and control groups was homogeneous (33). With the fulfillment of parametric assumptions, the analysis is continued using parametric statistical techniques. To test the difference in posttest results between the experimental and control groups on each variable, an independent samples t-test was used. This test determines whether there are significant differences in bullying, empathy, and aggressiveness scores between the two groups after the intervention is given. Furthermore, to evaluate the changes before and after the intervention in each group, a paired t-test was used. Paired tests were applied to pretest versus posttest data in both experimental and control groups, to see if there were significant changes in the group over time. The entire statistical analysis was carried out with the help of SPSS software version 25 with a significance level of $\alpha = 0.05$.

Results

The measurement results showed a change in bullying behavior scores in the experimental group after being given an anti-bullying PE model intervention. Table 1 summarizes the comparison of the average score of bullying behavior (in the role of perpetrator, victim, and witness) between the pretest and posttest for both the experimental and control groups.

Table 1: Comparison of Bullying Scores Before and After Intervention

Group	The Role of Bullying	More precisely Pre-test	Post-Test Scores	Score Change
Experiment	Perp	2.02	1.41	-0.61
	Victim	2.44	1.89	-0.55
	Witness	2.95	2.32	-0.63
Control	Perp	2.06	1.98	-0.08
	Victim	2.63	2.51	-0.12
	Witness	3.00	2.95	-0.05

In the experimental group, there was a considerable decrease in all three bullying roles. The average score as a perpetrator decreased from 2.02 (pretest) to 1.41 (posttest), which indicates a decrease in the frequency of students committing bullying actions after the implementation of the anti-bullying PE model. Similarly, the average score as a witness dropped from 2.95 to 2.32. This decrease in witness scores indicates an increase in students' courage and awareness to no longer be

passive when they see bullying; In other words, fewer students only act as passive spectators after the intervention, as they begin to dare to take a stance of rejecting bullying in the classroom. In addition, the average score as a victim also decreased from 2.44 to 1.89, which means that the social atmosphere of the classroom becomes safer and more supportive so that the number of students who feel victimized is reduced. Overall, all three roles related to bullying behavior showed a

decrease in scores in the experimental group, reflecting a decrease in bullying behavior that was achieved through the intervention.

In contrast, in the control group that did not receive specific anti-bullying interventions, changes in bullying scores tended to be minimal. For example, the perpetrators' score in the control group only dropped slightly from 2.06 to 1.98. The victim's score dropped from 2.63 to 2.51, and the witness score was almost stagnant (from 3.00 to 2.95). A very small decline in these three roles suggests that without an anti-bullying PE model, difficult bullying behaviors are significantly reduced. The control class that received only

regular PE did not experience any significant changes in the dynamics of bullying; bullying behavior, as well as the student's reaction as a victim or witness, remained almost the same as before. Comparisons between the two groups indicated a real impact of the intervention: the anti-bullying PE model in the experimental group was able to lower the bullying behavior score more substantially than the class with traditional PE. To see the differences between groups directly in the final results, Table 2 presents a comparison of posttest bullying scores between the experimental and control groups in each role.

Table 2: Comparison of Post-Test Bullying Scores between Experimental and Control Classes

The Role of Bullying	Experimental Post-Test Score	Control Post-Test Score	Score Difference (Experiment - Control)
Perp	1.41	1.98	-0.57
Victim	1.89	2.51	-0.62
Witness	2.32	2.95	-0.63

In the posttest, the experimental group scored lower than the control group for all bullying roles. The difference in average scores showed that involvement as perpetrators, victims, and witnesses of bullying in the experimental class was much lower than in the control class (the difference was about 0.57–0.63 points lower on a scale of 1–4). These results are consistent with previous findings that interventions are successful in suppressing bullying behavior. Meanwhile, the still relatively high scores in the control group showed that without specific interventions, bullying behavior continued to occur with almost

the same frequency as before. These findings confirm the effectiveness of the anti-bullying PE learning model in reducing bullying behavior in elementary schools.

Comparison of Empathy Scores – Pre and Post

The results also showed a significant increase in empathy in the students of the experimental group. Table 3 shows the comparison of the average scores of empathy (separate for cognitive and affective aspects) at the pretest and posttest in both groups.

Table 3: Comparison of Empathy Scores Before and After Intervention

Group	Aspect Empathy	A Pre-test	Post-Test Scores	Score Change
Experiment	Cognitive	3.05	3.72	+0.67
	Affective	3.11	3.85	+0.74
Control	Cognitive	3.07	3.15	+0.08
	Affective	3.08	3.17	+0.09

In the experimental group, empathy scores increased markedly after the intervention. The average score of students' cognitive empathy (the ability to understand the viewpoints and feelings of others) rose from 3.05 to 3.72. A similar improvement also occurred in the aspect of affective empathy (the ability to feel the emotions of others), where the average score rose from 3.11 to 3.85. This increase in scores of almost 0.7 on a scale of 1–5 reflects a practical significant increase in empathy: students become more concerned and sensitive to the emotional state of their peers after

participating in anti-bullying PE learning. This is natural because the interventions provided are indeed designed to foster empathy through cooperative play and reflective discussion of behavior.

In contrast, the control group experienced only a very small increase in empathy. The cognitive empathy score in the control group rose slightly from 3.07 to 3.15, and affective empathy from 3.08 to 3.17. This increase of less than 0.1 can be said to be practically meaningless. Students who study PE by the usual method do not experience much

change in their social-emotional sensitivity during the same period. A comparison of the results of these two groups indicated that the anti-bullying PE model was able to significantly increase student empathy, far exceeding the minimal improvement that occurred in conventional PE methods. In other words, PE learning that is integrated with social values is able to foster empathy effectively, while traditional PE tends not to be enough to hone students' empathy skills.

Table 4: Comparison of Pre and Post Test Aggressiveness Scores

Group	Aggressiveness Dimension	A pre-test	Post-Test Scores	Score Change
Experiment	Physical Aggression	3.00	2.21	-0.79
	Verbal Aggression	2.68	2.30	-0.38
	Anger	3.07	2.48	-0.59
	Hostilities	2.76	2.34	-0.42
Control	Physical Aggression	2.66	2.54	-0.12
	Verbal Aggression	2.52	2.45	-0.07
	Anger	3.13	3.00	-0.13
	Hostilities	2.66	2.58	-0.08

It was seen that the entire dimension of aggressiveness decreased in the experimental group after the implementation of the anti-bullying PE model. The largest decrease occurred in physical aggressiveness, where the average score dropped from 3.00 to 2.21 (difference of -0.79). This shows a reduced tendency of students to commit physical violence after participating in the intervention; anti-bullying PE activities seem to be successful in channeling students' physical energy in a more positive and controlled direction. A large decrease was also seen in the verbal dimension, from a score of 2.82 to 2.10 (-0.72), indicating that students in the experimental group were much less likely to engage in verbal aggression (such as shouting angrily or insulting friends) after the program. For the anger dimension, the score decreased from 3.07 to 2.48, reflecting improved students' ability to manage and relieve angry emotions. Even the dimension of hostility showed a decrease (from 2.66 to 2.30), which means that students' hostile attitudes or hatred towards others decreased. Thus, it can be concluded that the level of student aggressiveness decreased significantly thanks to the interventions applied. In the control group, the decrease in aggressiveness tended to be very small and negligible. The physical aggressiveness score in the control group only dropped slightly from 2.94 to 2.81, as did verbal aggressiveness drop from 2.75 to 2.68 (almost unchanged). The dimension of

Comparison of Aggressiveness Scores – Pre and Post

In addition to reducing bullying behavior and increasing empathy, interventions also have an impact on reducing students' aggressive levels. Table 4 below presents a comparison of the average score of aggressiveness (on the physical, verbal, anger, and hostility dimensions) between the pretest and posttest for the experimental and control groups.

anger is slightly reduced from 3.13 to 3.00, and hostility from 2.70 to 2.65. This minimal change shows that conventional PE learning has not been effective enough to reduce students' expressions of aggressiveness. Students in control classes tend to have the same levels of anger and aggression as before, likely because there is no specific content in traditional PE that teaches emotion control or conflict resolution.

The difference in results between the two groups confirmed that the anti-bullying PE model was effective in suppressing students' aggressive behavior. Students in the experimental group learned to express themselves and solve problems without aggression, while students in the control group did not gain these additional skills. Thus, the interventions provided not only succeeded in reducing bullying behavior directly, but also reduced general aggressiveness that has the potential to trigger bullying behavior.

Statistical Analysis

To complement the above findings, inferential statistical analysis was carried out to test the significance of the observed differences. Paired ttests were used to look at pretest-posttest changes within each group, while independent ttests were used to compare experimental and control groups on posttests. The results of the statistical test are summarized in Table 5 and Table 6 below.

Table 5: Paired t-test Results (Pretest vs Posttest) in Each Group

Variable	Group	p (Sig. 2-tailed)	Interpretation
Bullying	Experiment	0,000	Significant (downgrade)
	Control	0,071	Insignificant
Empathy	Experiment	0,000	Significant (increased)
	Control	0,095	Insignificant
Aggressiveness	Experiment	0,000	Significant (decreasing)
	Control	0,084	Insignificant

In the experimental group, the results of the paired t-test showed significant changes for all three variables: bullying behavior decreased significantly ($p < 0.001$), empathy increased significantly ($p < 0.001$), and aggressiveness decreased significantly ($p < 0.001$). In contrast, in the control group, the pretest-posttest change for all variables was not statistically significant ($p > 0.05$). In other words, only the group that received the intervention experienced meaningful changes,

while the control group showed no significant difference between before and after the usual learning period. These findings are consistent with previous explanations that anti-bullying PE model interventions have a real impact on reducing bullying behavior and aggressiveness while increasing empathy, while PE learning without specific interventions does little to change students' behaviors and attitudes.

Table 6: Independent t-test Results (Posttest Comparison of Experimental vs Control Groups)

Variable	p (Sig. 2-tailed)	Remarks \square Posttest Comparison (Experiment vs Control)
Bullying	0,003	Significant – The bullying score of the experimental group was lower than the control
Empathy	0,001	Significant – The empathy score of the experimental group was higher than the control
Aggressiveness	0,005	Significant – The aggressiveness score of the experimental group was lower than that of the control

The results of independent t-tests on the posttest data also strengthened the findings of the effectiveness of the intervention. The p-value for the comparison of the experimental vs. control groups < 0.01 on all variables, which means that there are significant differences between the two groups in terms of bullying behavior, empathy, and aggressiveness after the intervention was implemented. In particular, the experimental group had significantly lower bullying and aggressiveness scores than the control group ($p = 0.003$ and $p = 0.005$), as well as significantly higher empathy scores ($p = 0.001$). Thus, an alternative hypothesis (H_1) for all three variables is accepted, while a null hypothesis (H_0) is rejected. Interventions of the anti-bullying PE model were shown to produce significant positive changes: lowering bullying behavior, lowering aggressiveness, and increasing empathy were statistically convincing compared to traditional PE methods. Meanwhile, the insignificant differences in the control group indicated that without intervention, there were no significant changes to these variables.

Overall, the inferential statistical analysis is in line with previous descriptive findings. The

intervention of the anti-bullying PE learning model has a statistically and practically significant impact on students' behaviors and attitudes related to bullying. Furthermore, the implications of this finding will be discussed further in the discussion section.

Discussion

The results of this study show that the Physical Education learning model designed with cooperative play methods, role simulations, and reflection on sportsmanship values is effective in reducing bullying behavior, increasing empathy, and reducing aggressiveness in elementary school students. The anti-bullying PE intervention given for ± 8 weeks successfully brought about positive changes in students' social and emotional behaviors. In the experimental group, the frequency of bullying behavior decreased dramatically, while students' empathy increased sharply. These findings are consistent with the theoretical framework of social-emotional learning (SEL) which emphasizes the importance of learning social skills and emotional control in bullying prevention efforts. Learning approaches that foster social awareness and concern have

been proven to empower students to be more empathetic and less aggressive. This is in line with previous research that found that increased empathy plays a key role in preventing bullying and violent behavior in schools (26, 27). Students who are more empathetic tend not to bully because they are able to understand and feel the suffering of the victim, and are more concerned about the welfare of their friends. In addition, a decrease in aggressiveness in the experimental group indicated that anti-bullying PE interventions were successful in helping students constructively manage aggressive emotions and impulses. Activities in this model – such as team games that require cooperation, rules of play that emphasize sportsmanship, and reflection sessions – provide opportunities for students to exercise self-control and channel energy in a positive way. As a result, students become more skilled at controlling anger and expressing frustration non-violently. This finding is important because unregulated aggressiveness is often a driving factor for bullying behavior. Reduced aggressiveness means a calmer and safer classroom climate, where conflicts can be resolved without intimidation. The results of this study are consistent with the literature suggesting that structured physical education programs can reduce students' negative expressions and improve their self-discipline (34). From a practical perspective, the success of the anti-bullying PE model in this study has positive implications for bullying prevention efforts in schools. First, these findings confirm that Physical Education has great potential as a medium for character education. So far, PE may have been more focused on motor skills and fitness, but with curriculum innovation, PE can be integrated with the content of social-emotional values without reducing the essence of physical activity. In this model, PE teachers play the role not only of sports instructors, but also of facilitators of life values such as empathy, cooperation, and self-control. Second, the intervention approach carried out is relatively easy to apply in the context of elementary schools. Simple but meaningful play, a brief discussion of behavior after an activity, and setting a real-world example in the school field are steps that teachers can adopt with little adjustment. This opens up opportunities for other schools to replicate similar programs in order to create a learning environment that is free from bullying. Academically, this research also

contributes to strengthening the empirical evidence on the importance of social-emotional learning in primary schools. In Indonesia, the discourse on Independent Learning and the Independent Curriculum emphasizes the development of Pancasila student profiles with character and culture. The results of this study support this policy by showing that contextual learning in PE can support the development of students' positive character. Students are not only trained physically, but also empathy and emotional control, so that they are in line with the idealized student profile (noble character, mutual cooperation, critical reasoning, etc.). The implementation of anti-bullying PE programs can be part of a school's strategy to meet the indicators of a safe and inclusive learning environment. Sure, there are some limitations to consider. For example, this study relies on self-report instruments that may have social bias (students answer as they are considered good). However, the consistent effect between quantitative data and observations during activities reinforces the belief that the changes that occur are real. In the future, similar studies can be complemented by direct observation of student behavior in the classroom or qualitative interviews to get a deeper picture of changes in student attitudes. However, in general, the findings of this study provide strong evidence that interventions of social-emotionally designed PE learning models are effective in suppressing bullying and promoting a positive climate in primary schools.

The results of this study show that the Physical Education learning model designed with cooperative play methods, role simulations, and reflection on sportsmanship values is effective in reducing bullying behavior, increasing empathy, and reducing the aggressiveness of elementary school students. These interventions are about physical activity and social-emotional learning (SEL) experiences that build awareness, care, and cooperative attitudes among students. In addition, the results are consistent with SEL theory and previous literature, which focuses on the importance of empathy as key in bullying prevention, as well as aggressiveness control as an important factor in ensuring a safe and inclusive classroom climate.

The learning model has been proven to be effective in various school contexts, both in urban, rural, and

border, and confirms that Physical Education has great potential as a medium for character learning. Physical Education teachers need to play the role of facilitators of life values, beyond the role of motor skills instructors. The results of this research contribute significantly to the practice of learning in elementary schools and support the development of a curriculum based on social values, as carried out in the Merdeka Belajar di Indonesia program.

Although this study provides valuable insights, several limitations must be acknowledged. First, the data relied primarily on self-report questionnaires, which may contain social desirability bias, as students might respond in ways they perceive as favorable. Second, the intervention was implemented over a relatively short period of approximately eight weeks, which may limit the ability to capture long-term behavioral change. Third, the study was conducted in a limited number of schools, so the findings may not fully represent diverse educational settings across different regions.

Future research is recommended to employ mixed-method designs involving direct classroom observations, teacher interviews, or long-term follow-up assessments to obtain a more comprehensive understanding of behavioral changes. Researchers may also explore the use of digital tools such as video reflections, learning analytics, or gamified platforms to enhance engagement and reinforce anti-bullying values. Expanding the study to include larger samples and various grade levels would also help determine the consistency and generalizability of the model's effectiveness.

Conclusion

This study demonstrates that a Physical Education learning model based on cooperative games and the reflection of anti-bullying values is effective in reducing bullying behaviors and aggressiveness, as well as increasing empathy among primary school students. The implemented anti-bullying PE interventions have shown a significant positive impact on students' social behavior and emotional regulation, thereby supporting the creation of a safer, more inclusive, and child friendly classroom environment. Students who participated in this learning model experienced a notable decrease in their involvement in bullying as perpetrators,

victims, or bystanders, reduced levels of aggressiveness, and increased empathy toward others.

The learning model developed in this study is relevant to various school contexts including urban, rural, and socio culturally diverse communities because it uses a universal approach through games and reflections that are easy for students to understand. The findings contribute meaningfully to strengthening character education in primary schools, particularly in bullying prevention efforts. PE teachers and other educators are encouraged to adopt strategies from this model as part of instructional innovation. By integrating values such as empathy, cooperation, and self control into physical activities, teachers can actively support national programs such as Merdeka Belajar and help establish a school climate free from bullying.

In conclusion, the success of this anti-bullying PE model shows that positive changes in student behavior can be achieved through a holistic and enjoyable approach. Physical Education learning enriched with social emotional content not only improves physical health but also shapes students' character to become more caring and courageous in resisting bullying. Therefore, this model has the potential to serve as an effective solution for combating bullying in primary schools and is worthy of broader implementation. For future research, it is recommended that researchers examine this model with a larger sample size, a longer intervention duration, and across different educational levels to assess the consistency of its effectiveness. Future studies may also explore the integration of technology such as reflection videos or educational digital games to enrich the learning process and increase student engagement in bullying prevention.

The findings of this study imply that integrating social-emotional learning into Physical Education can serve as an effective strategy for reducing bullying and fostering positive student character. Schools may adopt this model to structure PE activities that strengthen empathy, teamwork, and emotional regulation. Furthermore, policymakers could consider embedding anti-bullying components into national PE curricula to reinforce character education and ensure safer, more inclusive school environments. Based on the findings, this study recommends that schools

implement structured cooperative game-based Physical Education sessions at least once per week, accompanied by guided reflection to reinforce anti-bullying values. Teachers should receive short training programs or workshops to ensure proper facilitation of cooperative games and emotional reflection activities. School counselors and administrators are encouraged to integrate this model into broader school-wide anti-bullying policies. In addition, collaboration with parents through regular communication and home-based reinforcement activities is recommended to strengthen the impact beyond the classroom.

Abbreviations

α : Alpha (Significance Level), df: Degrees of Freedom, M: Mean, N: Number of Participants, p: p-value (Probability Value), Sig.: Significance, Std.: Standard Deviation, t: t-value.

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Author Contributions

Yudha Munajat Saputra: Data processing, drafting, finalizing, and editing the manuscript, Enjang Yusup Ali: Data collection, instrument development, validation, Mochamad Yamin Saputra: Layout, arrangement, editing the manuscript.

Conflict of Interest

The Authors declares that there is no conflict of interest.

Declaration of Artificial Intelligence (AI) Assistance

I declare that AI assistance is used only for proofreading, rephrasing sentences, and initial reference searches. All arguments, analyses, and main content of this work are the result of the

author's thinking. Any information sourced from literature is cited according to academic rules. The use of AI does not replace the author's scientific process.

Ethics Approval

Research ethics is approved by the Institute for Research and Community Service, Universitas Pendidikan Indonesia.

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