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Evaluating the Impact of Emotion Regulation Training on Aggressiveness in Elementary School Children

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ABSTRACT

Excessive aggressiveness during middle childhood can interfere with social functioning. Emotion regulation skills are essential at this stage, and training these skills is considered a relevant strategy to reduce aggressive behavior.This study aims to examine the effect of an emotional regulation training intervention on students aged 10–12 years at Elementary School "X" Bandung. Aggressiveness was measured using the Aggression Questionnaire by Buss and Perry (1992), Emotional regulation training provided as the intervention, while the Emotion Regulation Questionnaire (ERQ) by Gross and John (2003) was used as a manipulation check. The study employed a quasi-experimental pretest-posttest control group design with correlated groups. Data were analyzed using the Wilcoxon test to assess within-group differences and the Mann–Whitney U test for between-group comparisons. The results showed a significant reduction in aggressiveness among students who received the intervention ($p = 0.000$; $p < 0.05$). Based on Cohen's (1988) classification, the intervention demonstrated a strong effect size ($r = 0.88$). These findings indicate that emotion regulation training effectively decreases aggressive behavior in middle childhood. The study highlights the importance of incorporating emotion regulation programs into elementary education to foster emotional competence and reduce behavioral problems

Introduction

Children aged 10-12 years are in the middle childhood phase, where they learn to recognize emotions such as anger, fear, or sadness, understand others' reactions, and manage conflicts through friendships to enhance their social skills (Țepordei et al., 2023). Children who struggle to recognize and understand emotions often experience difficulties in social interactions and behavior, including aggressiveness. Childhood aggression has been consistently identified as an early indicator of social and psychological adjustment problems. Longitudinal research shows that children exhibiting early aggressive behavior are more likely to face academic difficulties, peer rejection, and an increased risk of delinquent or criminal behavior in adolescence (Rohlf et al., 2018). Reactive aggression, in particular, tends to elicit negative peer responses, reinforcing hostile interactions and increasing the risk of victimization over time (Morrow et al., 2022). Moreover, aggressive behavior in early adolescence significantly predicts the development of antisocial personality disorder (ASPD) in young adulthood (Whipp et al., 2019). These findings underscore the importance of

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studying childhood aggression to understand its immediate effects and to inform early interventions aimed at reducing the risk of severe psychological and behavioral outcomes later in life.

Aggressiveness is a behavior aimed at harming others, either physically or psychologically, to express negative emotions and achieve specific goals (Buss & Perry, 1992). It consists of four interrelated aspects. Physical aggression involves actions that physically harm others, such as hitting or kicking, while verbal aggression includes hurtful speech, such as arguing, spreading rumors, or being sarcastic. Anger refers to a physiological response that triggers aggression, characterized by irritability or difficulty controlling emotions. Hostility reflects negative feelings such as hatred, suspicion, or believing life is unfair. If left unaddressed, aggressiveness can have long-term effects on children's emotional and social development (Gülay Ogelman et al., 2021). Children can be trained to manage situations that may lead to aggression in a non-aggressive manner(Flannery et al., 2003). From a social learning perspective, aggression is learned through observation and social interactions, particularly when aggressive behaviors are rewarded or go unpunished (Allan, 2017).

One way to reduce aggressive behavior in children is by training their ability to regulate emotions. Research indicates that aggressive behavior in children is often a consequence of difficulties in emotion regulation, especially when self-regulatory functions such as executive function are impaired and anger mediates this relationship over time (Rohlf et al., 2018). Emotion regulation is the ability to determine when, how, and to what extent emotions are felt or expressed, including evaluating and modifying emotional reactions to suit the situation.

Emotion regulation involves three main steps. First, recognizing emotions, which includes understanding the emotions being felt, identifying their causes, predicting their behavioral impact, and managing both positive and negative emotions. Second, selecting emotion regulation strategies, such as reevaluating emotional triggers (*cognitive reappraisal*) or controlling emotional expressions (*expressive suppression*), especially in familiar situations (Gross, 2007). If challenges arise, children can learn relaxation techniques to help calm themselves (Macklem, 2008). Third, implementing the chosen strategy in a manner appropriate to the situation and expressing emotions correctly.

Previous research indicates that emotion-based interventions can effectively reduce aggressive behavior in school-aged children (Dickerson et al., 2020), and emotion regulation has been shown to decrease aggression toward others (Mujidin et al., 2023). Children who received emotion regulation treatment showed significant reductions in disruptive and aggressive behaviors compared to the control group (Njardvik et al., 2022), and adaptive strategies, particularly cognitive reappraisal, are linked to reduced aggression, with negative affect partially mediating this relationship (Gutiérrez-Cobo et al., 2023).

This study examines the impact of emotion regulation training on reducing aggressiveness among 10–12-year-old students at an elementary school in Bandung. The training helped students adopt more constructive emotional responses to anger-provoking situations, highlighting its potential to mitigate aggressive tendencies. Findings provide insights for enhancing emotional regulation skills, guiding parents in supporting their children, and informing the school about students' aggressiveness, particularly among fourth- to sixth-grade students.

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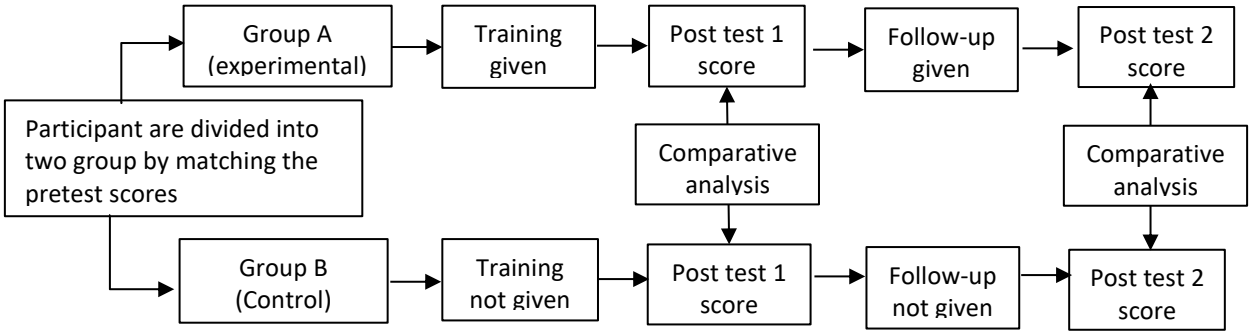
Method

Research Design

This study employed a quantitative approach using a quasi-experimental method with a pretest–posttest control group design and matched participants (Creswell & Creswell, 2018). To test the main hypothesis, comparisons were conducted between the pretest and Post-test I scores to examine the effect of the emotion regulation training on aggressiveness in the experimental group. The effect was considered strong if significant changes were observed and supported by effect size analysis (Cook et al., 2018; Creswell & Creswell, 2018) Subsequently, a follow-up assessment was conducted 21 days after the training for Group A, followed by the administration of Post-test II to evaluate the sustained effect of the intervention on aggressiveness levels in children from the experimental group.

To test the main hypothesis, a comparison was conducted between the pretest and post-test I scores to examine the effect of the emotion regulation training on aggression in the experimental group. This effect was considered strong if there was a significant change supported by effect size analysis (Cook et al., 2018). Subsequently, a follow-up was conducted 21 days after the emotion regulation training for Group A, followed by the administration of post-test II to assess the effect of the follow-up on aggression levels in children from Group A. Similarly, Group B was also administered the post-test I questionnaire. A comparison was then made between the pretest and post-test I scores within Group B, as well as between the post-test I scores of Groups A and B. Group B also received post-test II, and comparisons were made between post-test I and post-test II, as well as between pretest and post-test II scores in Group B. Moreover, the post-test I and post-test II results were also compared between Group A and Group B, as illustrated in the Figure 1.

Figure 1
Research Design



Participants

The participants were elementary school students from School "X" in Bandung. The study was conducted with approval from the school administration, and written informed consent was obtained from parents or guardians. Participation was voluntary, and students were informed that they could withdraw from the study at any time. Participants who met the inclusion criteria were matched based on relevant characteristics and then randomly assigned to one of two groups.

Using purposive sampling, students were selected based on predetermined criteria: being 10–12 years old (grades IV–VI), showing moderate to high levels of aggressiveness using the Buss and Perry Aggression Questionnaire (BP-AQ), and having moderate to low

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emotion regulation abilities based on the pretest using Emotion Regulation Questionnaire (ERQ). Before group assignment, all eligible students completed a pretest that included consent procedures, demographic data collection, and standardized assessments. A total of 40 students participated in the study, with 20 assigned to Group A (experimental group receiving emotion regulation training) and 20 assigned to Group B (control group receiving no intervention). Pretest and posttest assessments were administered to both groups to evaluate changes in aggressiveness and emotion regulation.

Instruments

This study employed two psychological instruments to assess children's aggression and emotional regulation. Aggression was measured using the Buss and Perry Aggression Questionnaire (BP-AQ), developed by Buss and Perry (1992), while emotional regulation was assessed using the Emotion Regulation Questionnaire (ERQ), developed by (Gross & John, 2003), which also served as a manipulation check. Measurements were conducted at stwo time points: first, between the pre-test and post-test 1, and second, between post-test 1 and post-test 2. This two-phase measurement design aimed to ensure that the observed changes in emotional regulation could be attributed to the effects of the training intervention.

The BP-AQ consists of 29 items encompassing four dimensions: physical aggression, verbal aggression, anger, and hostility. Each item is rated on a five-point Likert scale, where 1 indicates "Does not describe me at all," 2 indicates "Does not describe me," 3 indicates "Somewhat describes me," 4 indicates "Describes me," and 5 indicates "Describes me very well." Respondents were instructed to select the option that best described themselves. Several items are *reverse scored* to control for response bias. The total score was used to categorize levels of aggression as follows: low aggression (107–145), moderate aggression (68–106), and high aggression (29–67). Content validity was established through a multistage review procedure. First, the instrument was translated into Indonesian by a professional language expert from a national language institution. The translated version was then evaluated by three doctoral-level psychology experts with experience in psychological assessment and educational contexts, who reviewed the linguistic clarity, conceptual relevance, and developmental appropriateness of all items. Following the expert review, the preliminary items were discussed with elementary school teachers in Bandung to ensure contextual and cultural appropriateness for the target population, and subsequently piloted with two children aged 10–12 years to assess clarity and readability. An example of an evaluated item is: “If my friend makes me angry, I will hit them”. Following these steps, the instrument was administered to a sample of 167 children. The validity of the BP-AQ items was assessed using Spearman’s rank-order correlation between each item and the total score. The correlation coefficients ranged from 0.35 to 0.63 and were all statistically significant ($p < 0.05$). With a critical r value of 0.151 ($df = 165$, $\alpha = 0.05$), all items met the criteria for validity and were considered appropriate for further analysis. The reliability of the BP-AQ was examined using Cronbach’s Alpha. All 167 cases (100%) were valid and included in the analysis, with no data excluded. Listwise deletion was applied for any potential missing data. The 29-item instrument yielded a Cronbach’s Alpha coefficient of 0.86, indicating a high level of internal consistency and reliability.

The ERQ consists of 10 favorable items that assess individuals' tendencies in emotion regulation. Each item is rated using a seven-point Likert scale, where 1 represents "Strongly disagree," 2 represents "Disagree," 3 represents "Somewhat disagree," 4 represents "Neutral," 5 represents "Somewhat agree," 6 represents "Agree," and 7 represents "Strongly agree." An example of an evaluated item is: “I manage my emotions by changing how I think about the situation.”

Emotion regulation levels were classified based on the total score across items as follows: low emotion regulation (10–30), moderate emotion regulation (31–50), and high

emotion regulation (51–70). Item validity was analyzed using Spearman's rank-order correlation between each item and the total score. All items showed statistically significant correlation coefficients ($p < 0.05$), with r values ranging from 0.37 to 0.62. With a critical r value of 0.15 ($df = 165$, $\alpha = 0.05$), all items were considered valid and suitable for further analysis. The reliability of the ERQ was examined using Cronbach's Alpha. All 167 cases (100%) were valid and included in the analysis, with no data excluded. Listwise deletion was applied for any potential missing data. The 10-item instrument yielded a Cronbach's Alpha coefficient of 0.750, indicating an acceptable level of internal consistency and reliability.

An effect size test was conducted to determine the magnitude of the benefits of the emotion regulation training in the experimental group. A follow-up was conducted one month after the training, where both groups completed the aggressiveness questionnaire as post-test 2 data.

Intervention Procedure

The emotional regulation training used in this study was developed and adapted by the researcher based on emotion regulation stages theory (Gross et al., 1998) and the training emotion regulation materials by (Macklem, 2008; Njardvik et al., 2022). The session schedule was arranged based on prior discussion and adjusted according to the school's permission. Each session lasted approximately 45–60 minutes. Sessions 1–3 were conducted on the first day, while sessions 4 and 5 were delivered on the second day. The training consisted of five sessions:

Session 1: Recognizing and Assessing Emotions. This session involved presentations and show cards displaying various emotional reactions to help the participants identify and become aware of the negative emotions they experience. In this first session, participants were also given colorful illustrated worksheets to label different emotions and write about the situations that made them feel happy, angry, upset, or sad.

Session 2: Regulating and Managing Emotions. In this session, participants learned how to respond to negative situations by selecting appropriate emotional regulation strategies. They were introduced to cognitive reappraisal, which involves reflection, and expressive suppression, a more spontaneous method of controlling behavior. Techniques such as relaxation deep breathing and self-talk were also practiced through role play.

Session 3: Expressing Felt Emotions. This session focused on expressing emotions without resorting to physical or verbal aggression, anger, or hostility. Participants learned to express their feelings appropriately through role play, avoiding behaviors such as hitting, arguing, or spreading rumors.

Session 4: Review of Sessions 1, 2, and 3. In this session, participants reviewed the materials from the previous sessions, watched audiovisual presentations, and participated in discussions about the content of the videos.

Session 5: Consolidation. The final session provided closure to the training. Participants were recognized for completing the training and were given evaluation sheets to assess the materials. They were also assigned self-monitoring a 21-day worksheet to independently monitor their emotions. They were also encouraged to record events or situations that triggered their emotional responses. 21-day duration is considered adequate to initiate and observe behavioral change following an intervention (Singh et al., 2024). In the context of this study, the self-monitoring records collected during this period served as complementary data to support the evaluation of behavioral outcomes within the training program.

Data Analysis

This study employed a comparative analysis to examine differences in aggression levels before and after emotion regulation training in the experimental and control groups, as well

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as to compare aggression levels between the two groups. The data used were ordinal data from a population of no more than 30 individuals, characterized as non-normal but homogeneous. Therefore, the analysis was conducted using the Wilcoxon Test to compare two independent samples and the Mann-Whitney Test to compare two independent samples (Corder & Foreman, 2014). Furthermore, an effect size test (r) was conducted to determine the impact of the emotion regulation training intervention on aggression levels.

Results

Demographic data indicate that both the experimental and control groups consisted of an equal number of male (50%) and female (50%) participants. The age distribution was dominated by 11-year-old children, who constituted the majority in both groups, with 55% in the control group and 50% in the experimental group. Children aged 10 years accounted for 25% of participants in each group, while those aged 12 years represented 20% of the control group and 25% of the experimental group. In terms of educational level, the majority of participants in both groups were sixth-grade students, comprising 50% of each group. Within the experimental group, 30% were in fourth grade and 20% in fifth grade. Similarly, in the control group, students in both fourth and fifth grades each made up 25% of the sample. This balanced demographic composition ensured comparability between the experimental and control groups. See Table 1.

Table 1
The Distribution of Study Participant

			Frequency	Percentage
Gender	Experiment	Boys	10	50%
		Girls	10	50%
	Control	Boys	10	50%
		Girls	10	50%
Age	Experiment	10 years	5	25%
		11 years	11	55%
		12 years	4	20%
	Control	10 years	5	25%
		11 years	11	50%
		12 years	4	20%
Grade	Experiment	Grade 4	6	30%
		Grade 5	4	20%
		Grade 6	10	50%
	Control	Grade 4	5	25%
		Grade 5	5	25%
		Grade 6	10	50%

Descriptive data showed a reduction in aggressive behavior among students in the experimental group, as indicated by an increase in their aggression scores following the emotion regulation training and follow-up period. The mean score improved from 92.50 (*SD* = 10.22) at pre-test, to 113.75 (*SD* = 8.87) after the training, and further to 125.20 (*SD* = 7.05) after the follow-up. Meanwhile, the control group exhibited only slight increases in aggression scores across the same periods (from 88.90 to 91.05 and 93.05), with all changes remaining within the range of their standard deviations, suggesting no meaningful improvements. See Table 2.

Table 2.

Descriptive Statistics of Aggression Scores Before and After the Intervention by Group

Group	Measurement Time	Mean (M)	Std. Deviation (SD)
Experimental	Pre-test	92.50	10.22
	Post-test 1 (after training)	113.75	8.87
	Post-test 2 (after follow-up)	125.20	7.05
Control	Pre-test	88.90	12.73
	Post-test 1 (after training)	91.05	16.07
	Post-test 2 (after follow-up)	93.05	13.83

To examine the effectiveness of the intervention, a series of within-group comparisons were conducted. In the experimental group, a comparison between pre-test and post-test 1 scores (administered after the emotion regulation training) was conducted (Hypothesis 1). The Wilcoxon signed-rank test indicated a significant difference, $Z = -3.92$, $p < 0.05$, with aggression scores increasing from M = 92.50 (SD = 10.22) to M = 113.75 (SD = 8.87), indicating a decrease in aggressive behavior following the training. See Table 3.

Table 3.

Statistical Test Results for the Experimental and Control Groups

H	Research Group	Statistical Test	*Z* score	Sig	Conclussion
H_1	*Pre-test -Post test*1 E	Wilcoxon	- 3.92	0.000	rejected
H_2	*Post test*1- *Post-test*2 E	Wilcoxon	-3.26	0.001	rejected
H_3	*Pre-test* dan *Post-test* 2 E	Wilcoxon	-3.92	0.000	rejected
H_4	*Pre-test* E & C	Mann-Whitney	-1.07	0.285	accepted
H_5	*Pre-test - Post test*1 C	Wilcoxon	-0.49	0.627	accepted
H_6	*Post test*1- *Post-test*2 C	Wilcoxon	-0.79	0. 433	accepted
H_7	*Pre-test* dan *Post-test* 2 C	Wilcoxon	-1.46	0.145	accepted
H_8	*Post-test* 1 E & C	Mann-Whitney	-4.521	0.000	rejected
H_9	*Post-test* 2 E & C	Mann-Whitney	-5.32	0.000	rejected

Note: E:Experimental group; C:Control group; Sig: Significance level; Rejection or acceptance of the null hypothesis (H_0) is based on the significance value.

To ensure initial equivalence between the groups, a Mann-Whitney U test was conducted on pre-test aggression scores of the experimental and control groups (Hypothesis 4). The result showed no significant difference, $Z = -1.07$, $p > 0.05$, suggesting that the two groups were comparable before the intervention began. To examine whether the change persisted after the follow-up phase, a comparison between post-test 1 and post-test 2 scores was conducted (Hypothesis 2). The Wilcoxon test showed a significant difference, $Z = -3.26$, $p < 0.05$, with scores further increasing to $M = 125.20$ ($SD = 7.05$). This suggests continued improvement in aggression levels after the follow-up period. Furthermore, a comparison between pre-test and post-test 2 scores in the experimental group (Hypothesis 3) revealed a significant increase, $Z = -3.92$, $p < 0.05$, confirming the sustained and cumulative effect of the intervention in reducing aggression from $M = 92.50$ ($SD = 10.22$) to $M = 125.20$ ($SD = 7.05$).

In contrast, analysis of the control group's scores across the three assessment points revealed no significant changes. A comparison between pre-test and post-test 1 (Hypothesis 5) yielded no significant difference, $Z = -0.49$, $p > 0.05$, with mean scores changing only slightly from $M = 88.90$ ($SD = 12.73$) to $M = 91.05$ ($SD = 16.07$). The comparison between

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post-test 1 and post-test 2 (Hypothesis 6) also showed no significant difference, $Z = -0.79$, $p > 0.05$, with scores increasing to $M = 93.05$ ($SD = 13.83$). Similarly, the comparison between pre-test and post-test 2 (Hypothesis 7) yielded a non-significant result, $Z = -1.46$, $p > 0.05$. These findings suggest that the control group did not experience meaningful changes in aggression levels during the study period.

To assess the impact of the intervention between groups, a Mann-Whitney U test was used to compare post-test 1 scores of the experimental and control groups (Hypothesis 8). The analysis revealed a significant difference, $Z = -4.51$, $p < 0.05$, with the experimental group ($M = 113.75$, $SD = 8.87$) scoring higher than the control group ($M = 91.05$, $SD = 16.07$). This result supports the effectiveness of the intervention by the end of the training phase. A further comparison of post-test 2 scores between the experimental and control groups (Hypothesis 9) also revealed a significant difference, $Z = -5.32$, $p < 0.05$, with the experimental group ($M = 125.20$, $SD = 7.05$) maintaining higher scores than the control group ($M = 93.05$, $SD = 13.83$). This result indicates that the positive effect of the intervention was sustained after the follow-up.

The effect size for the change from pre-test to post-test 1 in the experimental group was calculated as $r = \frac{|Z|}{\sqrt{n}}$, where $r = 0.88$ represents the effect size, $|Z| = 3.92$ was obtained from the Wilcoxon signed-rank test used to examine Hypothesis 1, and $n = 20$ is the number of paired data included in the analysis. Based on (Cohen, 1988) classification, $r = 0.88$ falls into the large effect category (Corder & Foreman, 2014), demonstrating the substantial influence of the emotion regulation training on reducing aggressive behavior among elementary school students.

A manipulation check was conducted in the experimental group to assess the effectiveness of the emotion regulation training. The Wilcoxon signed-rank test indicated a significant increase in emotion regulation from pre-test to post-test 1 ($Z = -3.92$, $p < 0.001$), suggesting a positive effect of the training. A further significant improvement was found between post-test 1 and post-test 2 ($Z = -3.14$, $p = 0.002$), indicating that the follow-up phase reinforced the intervention's impact.

Discussion

Aggressive tendencies may serve adaptive motivational functions when appropriately managed. However, difficulties in emotion regulation can result in maladaptive expressions of aggression and destructive behavior (Gross, 2015). Aggressive behavior in middle childhood requires serious attention, as it may lead to emotional and behavioral problems that persist into adolescence and adulthood. At this developmental stage, children begin to encounter more complex social and emotional demands, yet many still have limited capacity to regulate intense emotions effectively. Therefore, interventions aimed at strengthening children's emotion regulation skills are essential. This study highlights the role of cognitive reappraisal and expressive suppression as emotion regulation strategies and examines the mediating effect of affective states on aggressive behavior among children in middle childhood.

These findings align with research showing that emotion regulation training effectively reduces aggression in children by significantly improving emotional management, which in turn decreases aggressive behaviors in the experimental group compared to the control group (Romero-López et al., 2021), and more broadly, emotion regulation interventions can reduce emotional dysregulation and related behavioral problems, including aggression (Lancastle et al., 2024). The reduction in aggression observed in the experimental group is not merely a coincidental change but a direct result of the training, as evidenced by the significant differences between pre-test and post-test, and in comparison with the control group.

Importantly, the manipulation check confirms that participants in the experimental group also improved in emotion regulation following the training.

The intervention was based on Gross's process model of emotion regulation and the framework proposed by Mackleem (2008), which posits that individuals can regulate emotions through strategies such as situation selection, attention deployment, cognitive reappraisal, and response modulation. In this study, children were first taught to identify and label emotions (emotion awareness), then guided to use reappraisal (changing the way they think about emotionally charged situations) and suppression (controlling expressive behaviors), particularly in situations that might trigger aggressive responses. The content and structure of the training were developmentally appropriate and delivered using engaging and visual methods, such as colorful worksheets, guided role-play, breathing relaxation, self-talk exercises, and audiovisual materials. For example, in the second session, children practiced deep breathing relaxation and positive self-talk, which align with Gross's idea of response modulation, adjusting emotional expressions before they manifest as maladaptive behaviors such as aggression. Through role-play, children can safely practice emotional expression and develop effective responses to challenging situations, promoting self-regulation and socially appropriate behavior (Safitri & Chudari, 2021). In the fourth session, the use of video stimuli allowed children to observe, analyze, and discuss aggressive behavior and its emotional triggers, thereby enhancing emotional understanding and behavioral reflection.

The first session of the emotion regulation training, called the "Recognizing and Assessing Emotions" session, was crucial as the ability to identify emotions is fundamental for children to avoid making inappropriate decisions in the subsequent stages of emotion regulation (Gross, 2007). In this session, children learned to identify emotions, thoughts, feelings, and bodily sensations through a presentation of images depicting various emotional reactions, designed to capture the children's attention. Participants were also provided with colorful, illustrated worksheets to help label their emotions and feelings, which also served as a form of self-evaluation, allowing them to reflect and connect their understanding with the responses or experiences gained during the training. The participants worked on the worksheets enthusiastically and cooperatively.

The second session, titled "Regulating and Controlling Emotions," focused on teaching strategies to manage emotional situations effectively. The participants learned cognitive reappraisal, which involves reassessing situations to shift perspectives, and expressive suppression, which helps them control emotional expressions to stay calm in potentially triggering circumstances, especially those previously experienced. They practiced role-playing relaxation breathing exercises and self-talk, such as "I can control my emotions. I can remain calm and patient," to strengthen their emotional regulation skills. Relaxation effectively manages negative emotions (Gross, 2007)and self-talk enhances emotion regulation in children (Macklem, 2008) . All participants engaged actively and sincerely in these activities.

The third session, "Expressing Emotions," focused on applying techniques through role-playing, where children practiced expressing their emotions without resorting to physical or verbal aggression, anger, or hostility in response to negative situations. Role-playing is an effective method for supporting emotional regulation in children, as it helps them reflect on emotional triggers and practic appropriate responses (Safitri & Chudari, 2021). During this session, trainers guided children in recognizing and labeling emotions in themselves and others, discussing emotions, managing emotional reactions, and enhancing problem-solving abilities (Macklem, 2008). Participants practiced expressing emotions

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constructively, avoiding behaviors like hitting, kicking, arguing, gossiping, or using sarcasm.

The fourth session served as a review of the previous three sessions, inviting participants to recap the key points covered. The trainer summarized the material from each session: recognizing emotions (session one), managing emotions (session two), and appropriately expressing emotions (session three). Participants are actively engaged by recalling and reinforcing the main concepts. Following this, they watched an audiovisual presentation depicting behaviors such as physical aggression, verbal aggression, anger, and hostility. Audiovisual materials have been recognized as effective instructional tools that enhance learning by promoting active observation, engagement, and timely feedback (Li et al., 2020). Through observing the characters' aggressive behaviors in the video, participants were encouraged to identify and avoid imitating such actions. The trainer facilitated discussions by posing questions related to the video and encouraging participants to share their responses, fostering two-way interaction.

The fifth session, titled "Consolidation," marked the conclusion of the emotion regulation training. Participants were acknowledged for their participation, thanked, and encouraged to apply the skills they had learned. A structured termination session plays a crucial role in consolidating learnt skills, reviewing progress, and facilitating their transfer to real-life contexts (Silverman et al., 2022). At the end of the training, participants completed an evaluation form, which revealed their positive experiences. They described the training as enjoyable and engaging and highlighted its effectiveness in helping them identify and manage emotions. Most participants reported significant benefits from the program and expressed intentions to change specific behaviors, such as refraining from verbal and physical harm toward others. However, a few participants indicated a desire to become more patient and apply the training material but were uncertain about the specific behavioral changes they would make.

To evaluate the impact of the follow-up training on aggression, a post-test 2 was conducted. Follow-up sessions proved essential in strengthening the outcomes of the training and helping participants overcome personal challenges during the implementation of emotion regulation strategies (Debeuf et al., 2024). Improvement was not only observed immediately after the training but was sustained during follow-up. Post-test 2 results confirmed a continued decline in aggression and improved emotion regulation. This suggests that the training's benefits are not short-lived and that emotional regulation, when practiced continuously, can help maintain behavioral improvements. The inclusion of a follow-up session with discussions and material recall supported the consolidation of the learned skills, in line with emphasis on reinforcement for long-term behavioral change (Silberman et al., 2015).

The mechanism by which emotion regulation reduces aggression is theoretically grounded. Poor emotion regulation may result in impulsive responses to emotional arousal, often manifesting as aggression. By increasing the capacity for reappraisal and emotional expression, children can interrupt this process and choose more adaptive responses. This aligns with Gross's theory that effective regulation can reduce the intensity and duration of negative emotional experiences, making aggressive responses less likely.

The practical implications of this study can be observed across several groups. For participants, it may function as a preventive effort to address academic problems and peer problems (Rohlf et al., 2018). For parents, this study offers key insights into how emotion regulation training supports children in managing aggressiveness. Parents who openly discuss emotions provide essential knowledge about emotional experiences and appropriate expression, helping children develop regulatory skills for managing distress (Spinrad &

Eisenberg, 2023). For teachers, the findings emphasize the role of emotion regulation training in reducing aggressiveness and supporting regulation skills among students in grades IV–VI (ages 10–12), also serving as a bullying preventive intervention since aggressiveness underlies bullying (Carney & Merrell, 2001; Volk et al., 2022). For school counselors and psychologists, the training provides an evidence-based framework for multi-tiered support systems and sustaining long-term benefits. Consistent application across home and school requires teacher and parent involvement to guide children's emotion regulation (Azevedo et al., 2025; Roskam et al., 2024). This aligns with Bronfenbrenner's bioecological theory, highlighting that development is shaped by proximal processes, and implementation across environments fosters behavioral improvements and emotionally responsive, conflict-reducing school climates (El Zaatari & Maalouf, 2022). For future researchers, this study may serve as a reference for addressing aggressiveness through emotion regulation training.

This study has several limitations, particularly regarding the role of teachers and parents in supporting children to apply the training outcomes in various everyday contexts. The involvement of teachers and parents, which could help sustain the long-term effects of emotion regulation training on children's behavior, was insufficient. Additionally, although the study included a relatively large number of participants, the number of facilitator assistants was not proportional, which limited their ability to provide necessary support and clarification. The children in this study showed inconsistent adherence to the self-monitoring tasks, potentially influenced by internal factors such as motivation, forgetfulness, or compliance, as well as external factors like the worksheet design, which lacked visual appeal due to limited colors, images, and overly simplistic fill-in-the-blank questions. Furthermore, the current training did not include game-based components, such methods may offer additional engagement and retention benefits, especially for younger children. Future interventions could experiment with integrating playful and narrative elements to reinforce emotion regulation strategies more effectively.

Conclusion

Emotion regulation training significantly reduced aggression in elementary school children in Bandung, yielding a large effect size by helping them recognize and identify emotions, manage them through strategies such as breathing relaxation and self-talk, and express emotions in a more controlled manner when facing emotionally triggering situations. The training was intentionally designed to decrease aggression while strengthening emotion regulation skills, and the findings showed significant differences in aggression levels between children who received the training and those who did not.

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Declarations

Author contribution. EKC designed the study, analyzed the data, and wrote the research article. Y Providing input, sharing relevant information, and participating in discussions on the research methods used and EV Providing input, sharing relevant information, and participating in discussions on the variables used in the study.

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