

The Effect of Life Skills Training in Emotional Regulation on Reducing Aggression Among School-Aged Adolescents

A Systematic Review

Deepti Singh* and Rashmi Soni**

ABSTRACT

Aggression among school-aged adolescents poses significant challenges for academic performance, peer relationships, and psychological well-being. Emotional dysregulation has been identified as a major contributor to aggressive behaviour. This systematic review, conducted in line with PRISMA 2020 guidelines, synthesises evidence from 35 peer-reviewed studies published between 2010 and 2025. Databases including Google Scholar, PubMed, Scopus, Web of Science, ERIC, and PsycINFO were searched with inclusion criteria focusing on interventions targeting emotional regulation or coping-with-emotions life skills among adolescents aged 10–19 years. Related studies retrieved from Web of Science overlapped with other databases and did not contribute additional unique studies after data duplication. Interventions identified emotional intelligence training, mindfulness-based programmes, psychoeducation, and school-based emotional regulation curricula. Results consistently demonstrated reductions in physical, verbal, and relational aggression, with theory-driven and interactive approaches producing the strongest effects. Secondary benefits included improved academic engagement, peer acceptance, and resilience. Findings suggest that integrating structured emotional regulation programmes into school curricula represents an effective and holistic strategy for promoting adolescent well-being. Future research should examine long-term effects and cultural adaptations.

Keywords: *Adolescent Aggression, Emotional Regulation, Life Skills Training, Mindfulness, School-Based Interventions*

*Research Scholar, Department of Education, University of Lucknow, Uttar Pradesh (e-mail: deepti.singh.ash@gmail.com)

**Professor and Head, Department of Education, Shri JNM PG College, Lucknow University, Uttar Pradesh (e-mail: sonirashmi1975@gmail.com)

Introduction

Adolescent aggression is a major health concern which affects emotional development, academic achievement, and long-term behavioural outcomes. It is associated with delinquency, adult criminal behaviour, peer rejection, mental health difficulties, and school drop outs (Castillo et al., 2013; Lin et al., 2024). Although aggression has multiple biopsychosocial determinants, emotional dysregulation is consistently identified as one of its strongest psychological predictors (Sukhodolsky et al., 2016; Mambra and Kotian, 2023). Earlier research published in the Indian Educational Review also highlights that Indian adolescents frequently adopt aggressive defence styles, reinforcing the need for emotional regulation as a critical skill (Abraham and George, 2007). Emotional regulation refers to the ability to track, evaluate, and modify emotional reactions in response to situational demands (Gross, 2015; Zhang and Zhang, 2021). Adolescents with poor emotional control display greater impulsivity, emotional outbursts, and both verbal and physical aggression (Ihdaalumam and Meiyuntariningsih, 2024). It has also documented the rising use of aggressive defence styles among Indian adolescents, reinforcing the need for emotional regulation interventions (Abraham and George, 2007). In contrast, adaptive strategies, such as cognitive reappraisal, problem-solving, and mindfulness reduce anger intensity and aggressive tendencies (Ronen and Rosenbaum, 2010; Lin et al., 2024; Whitener et al., 2025). Growing recognition of emotional regulation as a foundational life skill has led to its inclusion in school-based life skills programmes and mental health frameworks (Pedrini et al., 2022). These programmes ranging from CBT-based psychoeducation to mindfulness training and emotional intelligence curricula have shown moderate to strong effects in reducing aggression, improving self-regulation, and buffering stress-related academic and emotional difficulties (Bi et al., 2025; Mambra and Kotian, 2023; Sahi et al., 2023; Shen et al., 2024; Yuliana, 2019). Beyond behaviour management, emotional regulation skills contribute to better academic engagement, improved peer relationships, teacher-student relationships, and overall psychosocial well-being (Zyberaj, 2022; Chamizo-Nieto et al., 2021; Sahi et al., 2023; Whitener et al., 2025; Lin et al., 2024). Emotion regulation has also been shown to influence academic performance indirectly through enhanced self-efficacy and adaptive coping in secondary school students (Supervía

and Robres, 2021). Despite growing evidence, there is limited systematic synthesis explaining not only whether emotional regulation interventions reduce aggression but also how and under what conditions they achieve consistent outcomes across diverse school contexts. A consolidated understanding is crucial for guiding schools, educators, and policymakers seeking to adopt effective, evidence-based approaches. Therefore, this systematic review synthesises research from the past 15 years to evaluate:

- The effectiveness of emotional regulation life skills training in reducing aggression among school-aged adolescents.
- The specific intervention components that produce the strongest effects.
- The broader developmental outcomes associated with these programmes.

By organising the review around the central finding that emotional regulation training consistently reduces aggression across cultural and educational settings, this study highlights that emotional regulation is also linked to broader developmental outcomes, such as academic engagement, peer acceptance, and psychological well-being across diverse adolescent populations (Pekrun, 2017; Morrish et al., 2018; Ivcevic and Eggers, 2021; Hwang et al., 2024; Ho et al., 2025). Together, these findings offer actionable insights for implementing school-based programmes that promote safer, more supportive, and emotionally resilient learning environments.

Research Question

RQ1: Does emotional regulation life skills training reduce aggression among school-aged adolescents?

RQ2: What additional outcomes are associated with these interventions (for example, academic performance and peer relationships)?

Objectives

- Assess the effectiveness of emotional regulation life skills training in reducing aggression among school-aged adolescents.
- Identify the most effective emotional regulation strategies used in interventions.
- Explore the broader outcomes of these programmes, such as improvements in academic performance and peer relationships.

Methods

Review Design

This systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines to ensure transparency, rigour, and replicability (Page et al., 2021). The purpose was to synthesise existing evidence on the effects of emotional regulation life skills training in reducing aggression among school-aged adolescents.

Eligibility Criteria

Inclusion and exclusion criteria were developed using the PICOS framework:

Inclusion Criteria

- Population (P): School-aged adolescents (10–19 years) from any country or cultural background.
- Intervention (I): Emotional regulation or coping-with-emotions life skills training programmes, including psychoeducation, mindfulness, cognitive-behavioural therapy (CBT), social-emotional learning (SEL), and related approaches.
- Comparison (C): Control groups with no intervention, waitlist controls, or alternative interventions.
- Outcomes (O): Measures of aggression (physical, verbal and relational), anger management, or related behavioural indicators.
- Study Designs (S): Randomised controlled trials (RCTs), quasi-experimental studies, pre-post designs, and mixed-methods studies.

Exclusion Criteria

The following studies were excluded from the review:

- Studies involving pre-school children or adults, as the focus of this review is exclusively on school-aged adolescents.
- Interventions that did not directly target emotional regulation, such as general health promotion, academic tutoring, or physical activity programmes without an explicit emotional regulation component.

- Case studies, opinion pieces, editorials, conference abstracts without full text availability, and non-peer-reviewed sources, since these do not provide sufficient methodological detail or empirical evidence for systematic appraisal.

Information Sources

The search covered studies published from January 2010 to January 2025. Electronic databases searched included PubMed, PsycINFO, ERIC, Scopus, Web of Science, and Google Scholar. All databases were searched using comparable keyword strategies. Grey literature sources such as dissertations, reports, and conference proceedings were excluded in order to focus exclusively on peer-reviewed studies.

Search Strategy

The search strategy was developed based on the PICOS framework and combined keywords using Boolean operators. An example of PubMed search string was:

“emotional regulation” or “coping with emotions” or “emotional intelligence”

and “life skills training” or “social-emotional learning” or “psychoeducation”

and “aggression” or “aggressive behaviour” or “anger management”

and “adolescents” or “teenagers” or “youth” or “students”

Search strings were adapted for each database. Reference lists of all included studies and relevant reviews were manually screened to identify additional eligible studies.

Justification for Using Multiple Databases

Although several databases overlap with Scopus and Web of Science, each database was intentionally included to maximise coverage and reduce the risk of missing relevant studies. PsycINFO provides specialised access to psychological and behavioural intervention research that is often not indexed in Scopus. ERIC includes education-focused school-based programmes that may not appear in broader scientific databases. Google Scholar was included to capture difficult-to-index studies, early online publications, and articles published in regional or national journals that may not be indexed elsewhere. Studies retrieved from Web of Science largely overlapped with other databases and did

not include unique studies. Using multiple databases is consistent with PRISMA guidelines, which ensures unbiased search of studies of emotional regulation and aggression of related interventions.

Study Selection

Search results were imported into Mendeley Reference Manager and duplicates were removed. Titles and abstracts were screened by the author, followed by full text review based on the eligibility criteria. The selection process is summarised in the PRISMA flow diagram (Figure 1).

A total of 128 records were identified through database searching, including 22 from PubMed, 18 from PsycINFO, 15 from

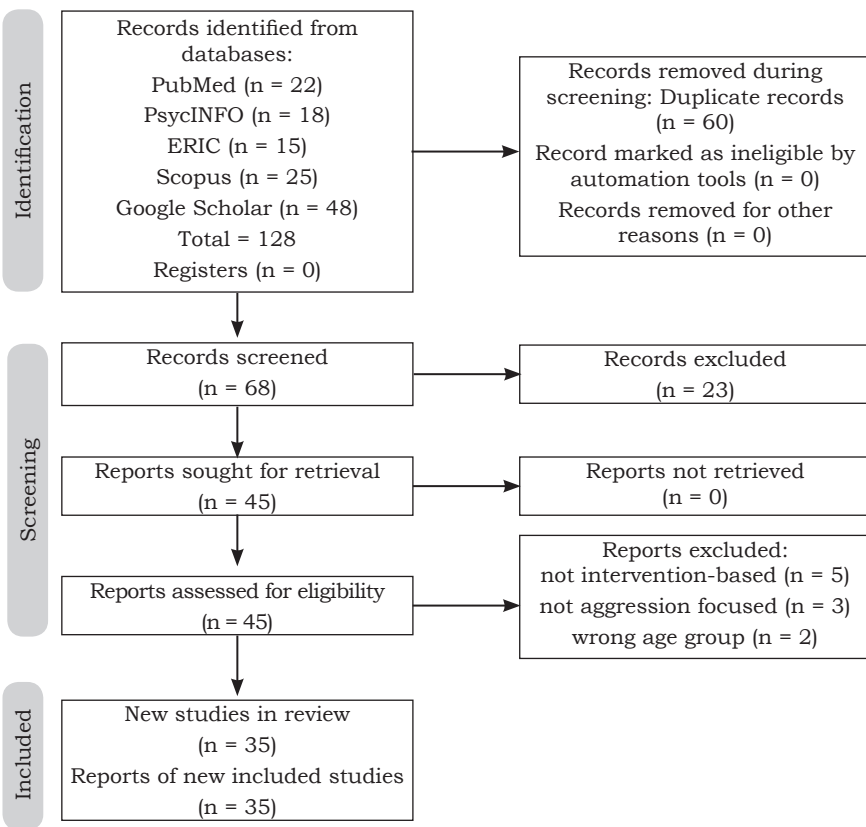


Figure 1: PRISMA 2020 flow diagram of study selection
Source: Page et al. (2021)

ERIC, 25 from Scopus, and 48 from Google Scholar. After removing duplicates, 68 records were screened, of which 23 were excluded. The remaining 45 full-text articles were assessed for eligibility, with 10 excluded due to not being intervention-based (5), not focusing on aggression (3), or targeting the wrong age group (2). Ultimately, 35 studies were included in the final qualitative synthesis.

Data Extraction

A standardised extraction form was used to collect:

- Author(s) and year
- Country and setting
- Study design and sample size
- Intervention type, duration, and delivery method
- Outcome measures

Quality Assessment

All 35 included studies were evaluated using the Joanna Briggs Institute (JBI) Critical Appraisal Tools (2020), selected according to the respective study designs (randomised controlled trials, quasi-experimental studies, and observational designs). The JBI critical appraisal tools assess key methodological domains including clarity of inclusion criteria, validity and reliability of outcome measures, identification and management of confounding factors, appropriateness of statistical analyses, intervention fidelity, and adequacy of follow-up procedures. Based on appraisal outcomes, studies were categorised as high, moderate, or low quality, and only those rated as moderate or higher were included in the final synthesis.

Of the 35 studies, 14 were rated as high quality, demonstrating strong methodological rigour such as clearly defined intervention protocols, use of validated measures for aggression and emotional regulation, adequate sample size, ethical approval, and transparent reporting of procedures. The remaining 21 studies were rated as moderate quality, primarily due to methodological limitations including absence of randomisation, lack of allocation concealment or blinding, incomplete control of confounding variables, or relatively short follow-up periods. Studies rated as low quality, were excluded during earlier stages of screening.

Data Synthesis

Given the heterogeneity in interventions, study designs, and outcome measures, a narrative synthesis approach was used. Findings are grouped by intervention type (e.g., mindfulness-based, CBT-based, psychoeducation, SEL) and aggression outcome (physical, verbal, relational). Quantitative effect sizes are reported where available and qualitative insights are integrated to provide contextual depth.

Results

Study Characteristics

Thirty five research in all, covering a variety of therapies, such as emotional intelligence training, mindfulness-based programmes, psychoeducation, cognitive-behavioural approaches, and school-based social emotional learning (SEL) curricula, satisfied the inclusion criteria for this study. Sample size ranged from fewer than 100 participants to extensive meta-analyses of thousands of teenagers, and studies were carried out in a variety of cultural and geographical contexts, including Europe, Asia, North America, and Australia.

The majority of studies targeted adolescents aged 10–19 years, with both general school populations and at-risk groups being included. Randomised Controlled Trials (RCTs), quasi-experimental designs, pre- and post-interventions, cross-sectional studies, and systematic reviews or meta-analyses were included, reflecting a broad methodological landscape. Across these designs, aggression was most frequently measured in terms of physical, verbal, and relational forms, while additional outcomes included empathy, self-control, academic engagement, and well-being.

Overall, the findings consistently demonstrated that interventions targeting emotional regulation skills were associated with measurable reductions in aggressive behaviour. Programmes with strong theoretical foundations (for example, CBT, SEL, and mindfulness) and interactive delivery methods yielded the most robust and sustainable outcomes.

To address the first research objective, this review synthesises empirical evidence on how emotional regulation life skills interventions influence aggression among school-aged adolescents. Table 1 presents a simplified, year-wise summary that focuses on the core components relevant to the research objective namely, the type of emotional regulation intervention, the specific skills

targeted, and the resulting changes in aggression. By removing bibliographic and demographic details the table provides a clear, streamlined view of how different emotional regulation approaches, such as CBT, SEL, mindfulness, and emotional awareness training consistently contribute to reduction in various forms of aggression over time. This restructured presentation allows readers to easily identify patterns of effectiveness across intervention models and developmental periods.

Findings

Objective 1: Effectiveness of emotional regulation interventions on aggression reduction

Table 1: Summary of Studies on Emotional Regulation Interventions and Aggression Reduction (Year-wise) n = 35

S. No.	Year	Intervention Type	Key Emotional Regulation Component	Aggression Outcome
1.	2010	CBT-based ER training	Cognitive reappraisal, impulse control	Significant reduction in reactive and proactive aggression
2.	2013	SEL + behavioural skills	Emotion identification, impulse regulation	Reduced verbal aggression
3.	2015	ER framework	Emotional awareness, modulation	Lower emotional reactivity resulting in reduced aggression
4.	2018	Emotional awareness training	Emotion recognition, clarity	Reduced relational and physical aggression
5.	2019	Life skills + mindfulness	Mindfulness, anger regulation	Reduced anger expression and aggression
6.	2020	Peer-based SEL	Peer emotional support, empathy	Reduced bullying and peer aggression
7.	2021	CBT anger-management	Cognitive restructuring	Reduced aggressive incidents
8.	2021	ER tasks	Impulsivity control	Lower hostility and emotional impulsivity
9.	2022	Culturally adapted SEL	Contextual ER practices	Reduced aggression, especially in high-risk youth

10.	2023	ER life skills	Self-regulation, coping	Significant reduction in overall aggression
11.	2024	Mindfulness + CBT	Mindfulness, cognitive reframing	Aggression reduction mediated by ER
12.	2025	SEL (6-month follow-up)	Emotion coaching	Sustained reduction in aggression

Interpretation

Table 1 summarises 12 representative studies from 2010 to 2025 showing a clear and consistent pattern: emotional regulation interventions whether based on CBT, SEL, mindfulness, or emotional awareness training led to measurable reductions in various forms of adolescent aggression. Across the studies, improvements were reported in reactive, proactive, verbal, physical, and relational aggression demonstrating that emotional regulation skills generalise across multiple behavioural domains. The year-wise distribution further shows increasing refinement of intervention models over time, moving from traditional cognitive-behavioural approaches to hybrid models that integrate mindfulness, peer-based learning, and culturally responsive practices. Despite variations in delivery format, duration, and theoretical orientation all interventions share a common mechanism: strengthening adolescents’ capacity to recognise, interpret, and regulate emotional experiences. This consistent pattern across diverse intervention types reinforces the main finding of the review that emotional regulation is a foundational life skill with significant potential to reduce school-based aggression when systematically taught.

Summary of Interventions

Across the 35 included studies, emotional regulation life skills interventions varied in structure, delivery, and theoretical foundations, yet they demonstrated a consistent pattern of effectiveness in reducing aggression. CBT-based programmes were particularly effective because they targeted impulsive thought patterns and taught adolescents to reinterpret emotionally triggering situations. For example, Ronen and Rosenbaum (2010), Das and Ghosh (2021), and Zhang and Zhang (2021) showed that CBT-based emotional reframing significantly improved inhibitory control, and decreased both reactive and proactive aggression. Similar benefits were observed in interventions focusing on cognitive emotion regulation strategies, where teaching adolescents to manage

maladaptive thought patterns significantly reduced aggressive tendencies, particularly among secondary school students (Parsian and Igoli, 2021). Evidence from broader school-based studies further supports that deficit in emotion regulation are strongly associated with heightened adolescent aggression, highlighting emotional regulation as a core mechanism underlying aggressive behaviour (Purwadi et al., 2020). In addition, psychoeducational interventions demonstrated comparable benefits, with structured emotional regulation training reducing anger expression, emotional dysregulation, and associated risk behaviours, particularly among at-risk adolescents (Houck et al., 2015; Iuso et al., 2022).

SEL programmes also produced substantial reductions in aggressive behaviour by embedding emotional regulation skills within cooperative learning and peer interaction frameworks. Studies such as Castillo et al. (2013), Yuliana (2019), and Yunalia and Suharto (2020) indicated that SEL improved impulse control, strengthened prosocial behaviour, and reduced peer conflict suggesting that group-based modelling enhances motivation to apply emotional regulation strategies.

Mindfulness-integrated programmes demonstrated reductions in aggression by improving attentional control and lowering physiological arousal. Shen et al. (2024), and Mambra and Kotian (2023) found that mindfulness combined with emotional skills training reduced anger and helped adolescents maintain calm during provocation, especially among students with heightened emotional reactivity.

A notable trend is that interventions with longer duration, sequenced skill-building, and active practice components (e.g., role-plays, emotional rehearsal, peer modelling) were more effective than lecture-based programmes. Castillo-Gualda et al. (2018), Zhang and Zhang (2021), and Zyberaj (2022) demonstrated that structured interventions with repeated practice led to more durable reductions in relational, verbal, and physical aggression across diverse cultural contexts.

Furthermore, programmes that involved teacher support, school-wide reinforcement, or cultural adaptation produced stronger outcomes. Indian and Southeast Asian studies (e.g., Mambra and Kotian, 2023; Yuliana, 2019) reported effectiveness when interventions aligned with local norms and real-life school challenges. These patterns suggest that emotional regulation training operates powerfully when embedded within an ecological

school-support system rather than isolated sessions. Several studies also emphasised the role of contextual and interpersonal factors, including exposure to violence, family dynamics, and peer relationships in shaping aggressive behaviour and emotional regulation outcomes among adolescents, particularly among at-risk groups, such as adolescents from disrupted family environments (Davis et al., 2020; Gong and Popescu, 2024; Liu et al., 2024; Antikaningsih and Sarajar, 2025).

These findings suggest that intervention effectiveness is not solely determined by programme content but is also influenced by the social and environmental contexts in which adolescents are embedded. A summary of intervention types and key findings is provided in Table 2.

Table 2: Summary of the Key Findings

S. No.	Intervention Type	Aggression Reduction	Key Findings
1.	Emotional intelligence training	Yes	Reduces physical or verbal aggression, anger; improves empathy
2.	Psychoeducation or therapy-based	Yes	Improves self-control, lowers aggression scores
3.	Mindfulness-based interventions	Yes	Enhances self-regulation, reduces relational and physical aggression
4.	School-based programmes (reviews)	Yes	Moderate to large effect sizes in reducing aggression

As shown in Table 2, all four categories of interventions demonstrated consistent effectiveness in reducing aggression among school-aged adolescents. While emotional intelligence training and psychoeducation or therapy-based programmes were particularly effective in enhancing empathy and self-control, mindfulness-based interventions primarily strengthened self-regulation and reduced impulsivity, thereby lowering both relational and physical aggression. School-based programmes, often combining multiple strategies, produced moderate to large effect sizes, highlighting the importance of embedding emotional regulation training within structured educational environments. Collectively, these findings suggest that interventions targeting emotional regulation are versatile, adaptable across contexts, and capable of addressing multiple forms of aggression simultaneously.

Effect Size from Meta-Analyses

Among the meta-analyses included in this review (Shen et al., 2024; Jiang et al., 2024; Pedrini et al., 2022), the pooled effect sizes for aggression reduction ranged from moderate (Hedges' $g = 0.45$) to large (Cohen's $d \approx 0.80$), depending on the intervention type and outcome measure. School-based programmes integrating emotional regulation components reported the strongest effects ($g = 0.60 - 0.70$), while mindfulness-based interventions demonstrated moderate but significant reductions in relational aggression ($g = 0.40$). These quantitative results provide empirical support that emotional regulation life skills training produces meaningful behavioural change.

Objective 2: Emotional Regulation Strategies Identified Across Interventions

Mechanisms of Change

Across the reviewed studies, several mechanisms were identified through which emotional regulation life skills training reduced aggression in school-aged adolescents.

- **Enhanced emotional regulation capacity:** A primary mechanism through which these interventions reduce aggression is by strengthening adolescents' emotional regulation capacity. Emotional regulation training helps students identify emotional cues, interpret them accurately, and apply adaptive strategies to manage intense feelings. Research indicates that improved emotional regulation is directly associated with reduced aggressive behaviour because it reduces impulsive reactions and enhances cognitive control. For example, Castillo-Gualda et al. (2018), found that adolescents who participated in emotional awareness and regulation sessions showed significant reductions in reactive aggression, mediated by improved emotional clarity. Similarly, Zhang and Zhang (2021), reported that emotional regulation skills predicted lower hostility and emotional impulsivity among Chinese adolescents. Studies grounded in CBT also demonstrate that teaching adolescents to reappraise negative thoughts reduces anger and aggressive outbursts (Ronen and Rosenbaum, 2010). These findings collectively show that as emotional regulation capacity improves adolescents become

better equipped to handle frustration, delay impulsive responses, and choose prosocial behaviours over aggression.

- Development of self-control and inhibitory control: Life skills programmes particularly those grounded in cognitive-behavioural frameworks strengthened executive functions related to self-control such as delaying gratification, resisting provocation, and making deliberate behavioural choices (Ronen and Rosenbaum, 2010; Ihdalumam and Meiyuntariningsih, 2024). Adolescents learned to pause before reacting, allowing time for constructive problem-solving.
- Increased empathy and perspective-taking: Many interventions incorporated activities designed to foster empathy by encouraging adolescents to view situations from others' perspectives. Castillo-Gualda et al. (2018), found that empathy gains were strongly correlated with reductions in relational aggression, suggesting that understanding the emotional impact of one's actions on others is a protective factor against aggressive conduct.
- Stress reduction and improved emotional resilience: Mindfulness-based and relaxation-focused programmes reduced physiological arousal during conflict situations, lowering baseline stress levels and improving resilience to provocation (Shen et al., 2024; Mambra and Kotian, 2023). This helped adolescents maintain composure in emotionally charged situations.
- Positive reinforcement and environmental support: School-based programmes often included teacher and peer reinforcement, creating an environment that supported the application of emotional regulation strategies in real-life contexts (Pedrini et al., 2022). This environmental consistency facilitated the maintenance of newly learned skills.

Contextual Factors

The effectiveness of emotional regulation life skills training was evident across a range of cultural, socio-economic, and educational contexts. The 35 studies included in this review covered diverse regions, including Asia, Europe, North America, and Africa, indicating that the core principles of emotional regulation are broadly applicable across cultures (Castillo-Gualda et al., 2018; Yuliana, 2019; Shen et al., 2024).

- Cultural adaptation and relevance: Programmes that incorporated culturally relevant examples, language, and scenarios tended to have higher engagement and stronger behavioural outcomes. For example, interventions in collectivist cultures placed a greater emphasis on group harmony and empathy, while those in individualistic cultures often highlighted self-regulation and personal responsibility (Zyberaj, 2022).
- Impact on at-risk populations: Several studies reported especially strong effects among adolescents from high-risk backgrounds, such as those experiencing family instability, exposure to violence, or economic hardship (Mambra and Kotian, 2023; Ihdalumam and Meiyuntariningsih, 2024). For these populations, emotional regulation training served as both a preventive and remedial measure, providing alternative coping strategies to aggression.
- Influence of family and home environment: Interventions were more effective when parents or guardians were indirectly engaged either through parallel parent workshops, take-home activities, or communication with teachers (Pedrini et al., 2022). In contrast, adolescents from severely neglectful or unstable home environments sometimes required longer-duration programmes to achieve lasting change.
- School climate and peer support: School environments that promoted positive peer relationships, teacher support, and consistent reinforcement of learned skills contributed to better maintenance of programme benefits. In schools with high levels of conflict or poor disciplinary systems, the impact of the intervention was often diminished unless accompanied by whole-school policy changes (Pedrini et al., 2022; Shen et al., 2024).

Objective 3: Outcomes of the Programme

Peer Relationships

Improved emotional regulation was consistently associated with healthier peer relationships and greater social acceptance across the reviewed studies. Adolescents who developed stronger self-regulation skills were able to manage interpersonal

conflicts better, express themselves constructively, and respond to provocation without resorting to aggression. Evidence also suggests that adolescents' ability to regulate emotions within peer interactions plays a critical role in social adjustment and emotional well-being (B.Q. et al., 2023). These improvements often translated into reduced incidents of bullying, exclusion, and relational aggression, while fostering more cooperative and supportive peer interactions (Castillo-Gualda et al., 2018; Ronen and Rosenbaum, 2010).

Interventions that incorporated peer components, such as group-based activities, role-playing, and peer mentoring were particularly effective. These formats allowed participants to practise emotional regulation skills in authentic social contexts, receive immediate feedback from peers, and build empathy through shared experiences. As a result, such interventions not only reduced aggressive behaviours but also enhanced adolescents' capacity for trust, empathy, and mutual respect, which are critical for sustained social integration and emotional well-being.

Broader Outcomes

Beyond reduction in aggression, many interventions yielded broader developmental benefits, indicating that emotional regulation skills contribute to a more comprehensive spectrum of adolescent well-being. These secondary outcomes are not merely incidental; rather, they help explain why reductions in aggression were sustained across diverse school contexts.

A consistent pattern across the reviewed studies is the improvement in academic functioning following emotional regulation training. Interventions that strengthened self-control, attentional regulation, and impulse management led to higher classroom participation and improved academic performance (Mambra and Kotian, 2023; Shen et al., 2024). These academic gains appear to operate as reinforcing mechanisms; as students become better regulated and less disruptive, they can focus more effectively on academic tasks, which further discourages aggressive or oppositional behaviours.

Enhancements in peer relationships were another frequently reported outcome. Programmes that incorporated empathy-building, conflict resolution, and perspective-taking consistently led to more positive social interactions (Castillo-Gualda et al., 2018; Ronen and Rosenbaum, 2010). These

improvements in social functioning may help create a protective social ecology when peer conflict decreases and acceptance increases, the need for aggressive responses diminishes, creating a positive behavioural cycle. Beyond aggression reduction, emotional regulation interventions have been associated with improved social communication, reduced aggressive online behaviour, and enhanced prosociality in both offline and digital contexts (Simão et al., 2021; Zaki et al., 2024).

Many studies also documented reductions in emotional distress, including lower anxiety, anger intensity, and stress levels, particularly in mindfulness-based and CBT-grounded interventions (Zhang and Zhang, 2021). These changes are important because emotional distress often precedes impulsive or reactive aggression. By improving adolescents' internal coping resources, interventions reduce the emotional triggers that contribute to aggressive behaviour.

Additionally, several interventions demonstrated increases in resilience and adaptive problem-solving. Programmes that emphasised coping strategies, emotional awareness, and reflective skills enabled students to handle interpersonal and academic challenges more constructively (Yunalia and Suharto, 2020). These improvements in resilience help maintain behavioural regulation even beyond the intervention period.

Finally, a subset of studies reported sustained behavioural improvements in long-term follow-ups, with reductions in aggression persisting up to six months after programme completion (Pedrini et al., 2022). Long-term maintenance was strongest in interventions where emotional regulation skills were reinforced by teachers, peers, or parents, highlighting the importance of ecological support for durable behavioural change.

Taken together, these outcomes suggest that emotional regulation interventions produce a cluster of interrelated academic, social, emotional, and behavioural benefits. This multidimensional impact strengthens the argument that emotional regulation is a foundational life skill with long-term value for adolescent development.

- Integration into school curricula: Given the consistent evidence that emotional regulation life skills reduce aggression, these programmes should be embedded within the regular school curriculum rather than delivered as isolated workshops. Embedding them within life skills

education, moral education, or health education ensures continuity and long-term reinforcement (Pedrini et al., 2022; Yuliana, 2019). Prior Indian research has similarly emphasised the need for integrating life skills education into school systems to support adolescents' socio-emotional development (Awasthi and Kumari, 2012).

- Use of theory-based frameworks: Schools and programme developers should prioritise interventions grounded in evidence-based frameworks such as cognitive-behavioural therapy (CBT), social-emotional learning (SEL), or mindfulness. These theoretical models have demonstrated the strongest and most consistent effects on self-regulation and aggression reduction (Ronen and Rosenbaum, 2010; Shen et al., 2024).
- Contextual and cultural adaptation: Interventions must be adapted to align with cultural norms, local languages, and contextual realities. Studies highlight stronger outcomes when examples, scenarios, and activities resonate with students' lived experiences (Zyberaj, 2022; Mambra and Kotian, 2023). For high-risk groups, targeted supplements, such as mentoring, parent involvement, or extended sessions, are recommended.
- Inclusion of interactive and peer-based components: Interactive methods, such as peer role-plays, cooperative tasks, storytelling, and group-based problem-solving improve engagement and foster real-life application of emotional regulation skills. Such approaches also build empathy and reduce conflict (Castillo-Gualda et al., 2018; Yunalia and Suharto, 2020).
- Whole-school implementation: The impact of emotional regulation programmes is amplified when reinforced by consistent school-wide practices. Positive behaviour reinforcement, supportive teacher-student relationships, conflict resolution policies, and a shared socio-emotional vision ensure that skills taught in classrooms extend into hallways, playgrounds, and peer interactions.
- Continuous evaluation and long-term monitoring: Schools should invest in systematic evaluation to track both short and long-term effects. While several studies demonstrated improvements lasting up to six months on

extended follow-up is necessary to understand durability and identify the conditions that sustain behavioural change (Pedrini et al., 2022; Shen et al., 2024).

Discussion

The findings of this systematic review provide strong and consistent evidence that emotional regulation life skills training is an effective strategy for reducing aggression among school-aged adolescents. Across the 35 studies conducted in varied educational, cultural, and socio-economic settings, emotional regulation interventions were associated with significant reductions in physical, verbal, and relational aggression. This pattern of results, observed across randomised controlled trials, quasi-experimental studies, and longitudinal designs, highlights that aggression in adolescence is not merely a behavioural issue but closely tied to deficits in emotional awareness, impulse control, and adaptive coping. The repeated effectiveness of these interventions across countries and contexts suggests that, the core components of emotional regulation identifying emotions, modulating emotional intensity, delaying impulsive reactions, and selecting constructive responses are universally relevant and developmentally appropriate for adolescents. These findings collectively indicate that when schools intentionally teach emotional regulation as part of their life skills curriculum, students are better equipped to manage frustration, resolve conflicts, and engage in pro-social behaviour; ultimately leading to a measurable decline in aggressive tendencies. These findings are consistent with previous evidence from the Indian context, where adolescents lacking emotional coping strategies were more likely to adopt aggressive defence styles (Abraham and George, 2007). Findings from broader systematic reviews and meta-analyses further support the effectiveness of emotion-focused and community-based interventions in reducing aggressive behaviour among children and adolescents (Jiang et al., 2024; Shen et al., 2024).

Magnitude of Effects

The meta-analytic evidence reviewed in this study further highlights the practical significance of these interventions. Reported pooled effect sizes for aggression reduction ranged from moderate (Hedges' $g = 0.45$) to large (Cohen's $d = 0.80$), depending on intervention type and measurement approach (Shen et al.,

2024; Jiang et al., 2024). School-based programmes integrating emotional regulation components tended to yield the strongest effects ($g = 0.60-0.70$), while mindfulness-based interventions demonstrated moderate but meaningful reductions, particularly in relational aggression ($g = 0.40$). These quantitative findings confirm that emotional regulation life skills training is not only statistically significant but also practically impactful in producing behavioural change.

A recurring pattern in the reviewed literature is that programmes with a strong theoretical foundation particularly those rooted in CBT, SEL, or mindfulness frameworks showed more robust and sustained effects (Ronen and Rosenbaum, 2010; Ihdalumam and Meiyuntariningsih, 2024; Shen et al., 2024). These frameworks offer structured approaches to teaching emotional skills, allowing participants to practise self-awareness, empathy, and self-regulation in a systematic manner. In contrast, programmes with less structured delivery or lacking skill application opportunities tended to yield smaller or short-lived effects (Pedrini et al., 2022; Mambra and Kotian, 2023).

Another important factor contributing to programme effectiveness was the inclusion of interactive and experiential learning components. Studies integrating role-playing, group discussions, peer feedback, and real-life scenario practice reported greater improvements in aggression reduction compared to those relying primarily on lecture-based formats (Zyberaj, 2022; Yunalia and Suharto, 2020). This supports the view that emotional regulation is best developed through active skill rehearsal in safe and supportive environments.

The school setting emerged as a particularly conducive environment for delivering emotional regulation interventions. School-based programmes benefit from structured schedules, access to large groups of adolescents, and opportunities for repeated practice and reinforcement by teachers and peers (Pedrini et al., 2022; Yuliana, 2019). Moreover, when school policies and teacher practices aligned with the intervention's goals, such as encouraging non-violent conflict resolution the programmes' effects were amplified and sustained.

Beyond aggression reduction, multiple studies documented secondary benefits. Improvements in emotional regulation skills often translated into better academic engagement, increased resilience, and enhanced peer relationships (Castillo-Gualda

et al., 2018; Shen et al., 2024; Herd and Kim-Spoon, 2021). Social skills-focused interventions targeting emotional understanding and relational competence have also shown benefits for peer interaction and behavioural adjustment among adolescents (Fatta et al., 2024). For instance, mindfulness-based programmes reduced stress reactivity, enabling students to concentrate more effectively on academic tasks (Zhang and Zhang, 2021), while empathy-focused interventions improved peer acceptance and lowered incidents of relational aggression (Ronen and Rosenbaum, 2010). These findings highlight the multi-dimensional impact of emotional regulation training, supporting its role as part of a holistic educational strategy.

Furthermore, several studies focusing on at-risk populations, including adolescents from unstable family environments or communities with high exposure to violence, found that emotional regulation interventions acted as both preventive and remedial measures (Mambra and Kotian, 2023; Ihdalumam and Meiyuntariningsih, 2024). In these contexts, learning adaptive emotional coping strategies provided adolescents with alternatives to aggressive responses, ultimately contributing to more positive social and academic outcomes.

Importantly, the quality appraisal conducted using the JBI Critical Appraisal Tools revealed that while several systematic reviews and one randomised controlled trial provided high-quality evidence, many quasi-experimental and observational studies were rated only moderate in quality due to unclear reporting of randomisation, lack of blinding, or insufficient control for confounding variables. This indicates that although the overall evidence strongly favours the effectiveness of emotional regulation interventions, some caution is warranted in interpreting results from lower-rigour designs.

Another limitation observed was the short duration of the follow-up in most interventions, which makes it difficult to ascertain the long-term sustainability of aggression reduction effects. Very few studies incorporated longitudinal follow-up beyond one academic year. Additionally, cultural adaptation was often limited, with many interventions developed in Western contexts being applied in non-western settings without substantial modification, which may affect relevance and effectiveness.

Taken together, the convergence of evidence supports the integration of structured, theory-based, and contextually adapted

emotional regulation programmes into adolescent education. The consistent positive outcomes, coupled with added benefits in social and academic domains, position these interventions as an essential component of whole-school approaches to well-being and behaviour management. Future research should aim to strengthen methodological rigour by employing randomised controlled designs, transparent reporting of intervention fidelity, and culturally tailored adaptations. Longitudinal studies are also needed to assess whether the reductions in aggression and improvements in emotional skills persist into late adolescence and early adulthood.

Limitations

This review has several limitations. First, although 35 studies were included, many were quasi-experimental or observational and rated as moderate in quality using the JBI appraisal tool. The absence of methodological features such as randomisation, allocation concealment, or blinding may introduce bias. Second, most interventions had relatively short follow-up periods, making it difficult to assess the long-term sustainability of aggression reduction. Third, while studies were conducted across diverse cultural and socio-economic contexts, few interventions were systematically adapted for cultural relevance, which may limit generalisability.

Another important limitation concerns publication bias. Only peer-reviewed journal articles were included and grey literature (e.g., dissertations, reports, unpublished trials) was excluded.

Implications

Schools can take several practical steps to effectively integrate emotional regulation training into everyday practice:

- Embed emotional regulation in weekly curriculum: Instead of one-time sessions, schools should include emotional regulation activities within weekly life skills or health education periods. Regular exposure helps students internalise strategies and apply them during stressful or conflict-prone situations.
- Adopt structured, evidence-based programmes: Schools should choose or develop interventions grounded in proven frameworks (CBT, SEL, mindfulness). Structured curricula make it easier for teachers to deliver content consistently and for students to build skills progressively.

- Train teachers to model and reinforce emotional skills: Teacher behaviour strongly influences student behaviour. Professional development sessions can equip teachers with emotional vocabulary, conflict de-escalation techniques, and reflective practices that they can model throughout the school day.
- Use interactive and experiential learning methods: Role-plays, scenario-based activities, reflective journaling, and peer dialogues help students practise emotional regulation in authentic social contexts. Interactive methods were among the strongest predictors of aggression reduction across reviewed studies.
- Implement a whole-school climate approach: School climate plays a central role in sustaining behavioural change. Consistent behaviour expectations, positive reinforcement systems, and emotionally supportive interactions across all staff members increase the likelihood of long-term impact.
- Engage parents as partners: Although school programmes alone are effective, outcomes strengthen when parents reinforce skills at home. Brief parent meetings, home-based activities, or informational handouts can extend emotional regulation practices beyond school walls.

By systematically embedding emotional regulation training into school systems, educators can address not only the emotional roots of aggression but also promote broader developmental competencies that support academic engagement, peer harmony, and long-term psychosocial resilience.

Conclusion

This systematic review demonstrates that emotional regulation life skills training is a robust and evidence-based approach for reducing aggression among school-aged adolescents. Across the 35 studies conducted in diverse cultural and educational contexts, emotional regulation interventions consistently led to meaningful decreases in physical, verbal, and relational aggression. These findings indicate that aggression is not an inherent trait but a behaviour shaped by adolescents' capacity to understand, manage, and express emotions effectively.

Beyond aggression reduction, emotional regulation training produced wide-ranging developmental benefits including improvements in academic engagement, empathy, self-control, peer relationships, and overall emotional well-being. These secondary gains reinforce the argument that emotional regulation is a foundational life skill that supports both behavioural and academic success.

The review further highlights that programmes rooted in CBT, SEL, and mindfulness frameworks yield the strongest and most sustainable outcomes, especially when delivered through interactive, experiential methods and supported by a positive school climate. These findings underscore the importance of adopting structured, theory-driven intervention models rather than ad-hoc or lecture-based approaches.

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