

Effectiveness of Emotional Regulation Intervention on Depression for Adolescents and Young Adults: A Systematic Review and Meta-Analysis

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ABSTRACT

Background: Depression is a highly prevalent mental health disorder among adolescents and young adults (AYAs). The inability to regulate emotions in adolescents is one of the factors that reduces mental health. Interventions focused on emotion regulation are needed to prevent depression among AYAs.

Objective: This study aims to test the effectiveness of emotion regulation-based interventions on depressive symptoms among AYAs.

Methods: This study used a systematic review and meta-analysis design. The literature search included four databases: PubMed, Scopus, CINAHL, and Web of Science. The PICO keyword search included original research published between 2016 and 2020. Risk of bias was assessed using the Cochrane Risk of Bias 2 tool. Data were analyzed using descriptive statistics and meta-analysis of standardized mean differences (SMDs) with 95% confidence intervals in RevMan 4.0.

Results: The authors identified nine original research articles. Meta-analysis results showed that emotion regulation interventions were associated with a reduction in depressive symptoms compared with control conditions (SMD = -0.64, 95% CI: -1.52 to 0.25). Substantial heterogeneity was observed across studies ($I^2 = 95.6\%$). However, the confidence interval included zero, indicating that the effect was not statistically significant. Overall, while a trend toward reduced depressive symptoms was observed, the findings do not provide strong evidence of a significant effect in adolescents and young adults (AYAs).

Conclusion: Emotion regulation interventions are one intervention that can prevent depression in AYAs. Emotion regulation needs to be practiced independently to produce lasting effects. Future research is recommended to focus on the relationship between self-help therapy and mental health issues in adolescents and young adults.

Keywords: *Adolescents, depression, emotional regulation, mental health intervention, young adults.*

INTRODUCTION

Depression is one of the most significant global health problems and a leading cause of morbidity worldwide, often emerging during mid-to-late adolescence and subsequently impacting psychosocial, physical, and emotional functioning [1, 2]. The most common mental health disorders (depression, stress, and anxiety) frequently occur during adolescence, a period characterized by significant developmental changes that can impede effective emotion regulation [3]. A previous study shows that a substantial proportion of individuals with depression experience persistent or worsening symptoms over time [4]. These situations indicate that depression increases the risk for recurrence and chronic mental health issues in adulthood [5, 6].

Adolescents and young adults (AYAs) are defined as individuals who have aged 12-25 years [7]. Depression can harm the developmental stages of AYAs. Depression often leads to decreased academic achievement, low motivation to learn, and increased school absenteeism [8]. In social aspects, adolescents with depression can withdraw from their environment or friends, experience

difficulties in building relationships with family or friends, and exhibit increased interpersonal conflict [9]. Prolonged emotional impacts also increase the risk of risky behaviors, including substance abuse, self-harm, or suicidal behavior, reducing quality of life and psychological well-being [10].

Depression among AYAs can be reduced with pharmacological and non-pharmacological therapies. Barriers to implementing pharmacological therapy include low medical adherence, limited accessibility, and stigma associated with accessing mental health services [11]. However, many existing interventions primarily focus on symptom reduction rather than addressing underlying mechanisms such as emotion regulation. Furthermore, an estimated 1 in 5 adolescents with mental health problems do not receive treatment due to barriers to accessing and seeking care [12]. Furthermore, the root causes of depression, such as emotional regulation, have not been addressed. This highlights the importance of interventions that focus on the root cause of depression, namely improving emotional regulation in adolescents [13, 14].

Emotional regulation is the ability to monitor, evaluate, and adapt emotional responses to environmental demands [15]. Poor emotional regulation is associated

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with decreased psychological well-being in adolescents [16]. Difficulty regulating emotions leads to repressed emotions, which can lead to depression [17]. Adolescence is a crucial period for the development of mental disorders, as evidenced by the highest prevalence of depressive disorders in adolescents aged 12-20 [18]. This increase is of particular concern, given that depression in adolescents can lead to ongoing mental health problems in adulthood [19].

Difficulties in emotion regulation are strongly linked to depression in adolescents, as the inability to adaptively manage negative emotions such as sadness, anger, and frustration can exacerbate and maintain depressive symptoms [20]. Adolescents with less emotion regulation tend to use maladaptive strategies to cope with stress, such as rumination, suppression, or avoidance [21]. This causes a decrease in coping in the face of academic and social stress, increasing hopelessness and low self-esteem [22]. On the other hand, adolescents with good emotional regulation can recognize, accept, and carry out adaptive coping, thereby preventing depression [23].

Previous reviews have shown that psychosocial interventions can reduce depression in adolescents [24]. This literature focuses more on nurses' general role in providing therapeutic interventions to adolescents [25]. However, existing reviews have not focused on emotion regulation-based interventions for preventing depression in adolescents. This indicates a lack of a focused synthesis of emotion regulation-based interventions in preventing depression among adolescents and young adults. Therefore, the purpose of this review is to evaluate the effectiveness of emotion regulation-based interventions for reducing depression among AYA's.

MATERIALS AND METHODS

This study used a systematic review and meta-analysis design and was reported according to the PRISMA guidelines [26]. The PRISMA framework was used to ensure transparency and methodological consistency at each step of the review in this study, including study identification, screening, PICO-based eligibility assessment, data extraction, and data synthesis.

The databases used in this study are PubMed, Scopus, CINAHL, and Web of Science. The search was limited to peer-reviewed articles published in English between January 2020 and August 2025 to capture recent and relevant interventions. The literature search was performed between September and October 2025.

The search strategy for this study followed the PICO framework to ensure systematic identification of relevant studies [27]. The population (P) is adolescents and young adults aged 12-25 years. This age is chosen based on commonly used classifications in global health research. It captures the transitional developmental period from adolescence to early adulthood, during which the risk of depression is highest [28]. The intervention

(I) was an emotion regulation-based intervention. The comparison (C) was usual care or a waitlist control group. The outcome (O) was depression or symptoms related to depression. The study design was limited to experimental design, including randomized controlled trials and quasi-experiments. The search strategy used Boolean operators. The primary keywords included intervention, emotion regulation, adolescents and young adults, and depression.

The included studies are based on PICO, which focused on adolescents and young adults with depression and evaluated emotional regulation with interventions that clearly reported depression-related outcomes. Review articles, meta-analyses, editorials, conference abstracts, theses, or dissertations were excluded from this study.

Rayyan AI was used to facilitate duplicate removal and systematic record screening. After duplicates were removed, titles and abstracts were independently screened by two reviewers to assess eligibility. Full-text screening was conducted for studies that met the initial inclusion criteria.

Disagreements between reviewers were resolved through discussion to reach a consensus. If agreement could not be reached between the two reviewers, a third reviewer was consulted. Reasons for exclusion at the full-text screening stage were documented. The study selection process is summarized in a PRISMA flow diagram.

Data extraction was conducted using a standardized table in Microsoft Excel and carried out independently by two reviewers. Extracted data included study characteristics, purpose, sample, interventions, outcome measures, and key findings. Any discrepancies in the extracted data were resolved through discussion between the authors. A narrative synthesis was used to explain emotion-regulation-based interventions. In addition, a narrative synthesis was conducted to complement the quantitative findings and provide a more comprehensive account of this systematic review's results.

The quality appraisal of included articles used the Cochrane Risk of Bias tool (version 1.0) [29]. This tool has seven domains of bias: random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessors, incomplete outcome data, selective reporting, and other sources of bias. The results of the quality appraisal were categorized as low, high, or unclear risk of bias. Two reviewers independently assessed the risk of bias, and any disagreements were resolved through discussion to reach consensus. The results of the risk-of-bias assessment are presented in the supplementary file (S1).

For Meta-analyses, we used Review Manager (RevMan) version 5.4. Continuous data were analyzed using standardized mean differences (SMDs) with 95%

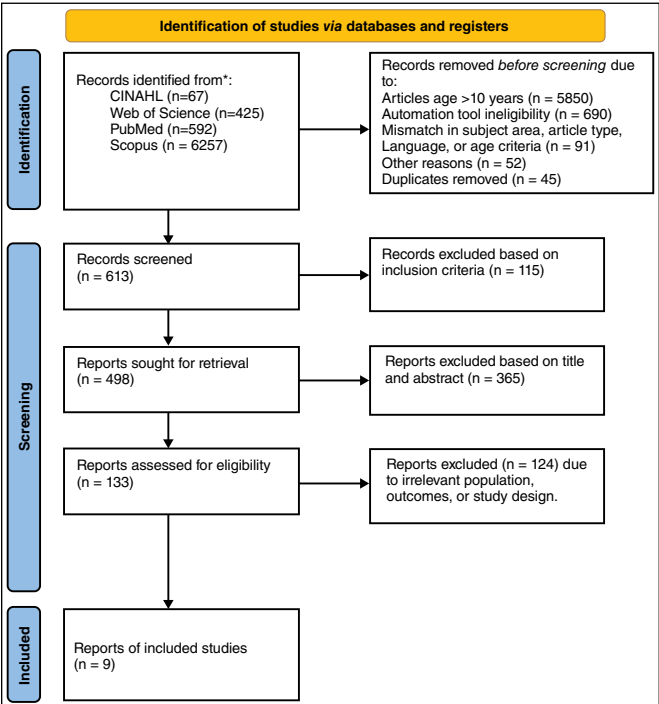


Fig. (1): PRISMA flow diagram.

confidence intervals. A random-effects model was applied to account for variability in measurement instruments and intervention types across studies. Heterogeneity was assessed using the I^2 statistic; values above 50% indicate substantial heterogeneity. Despite substantial heterogeneity, a meta-analysis was conducted as recommended in previous methodological studies, provided that the clinical and methodological diversity could be reasonably justified. Sensitivity analyses were conducted by comparing the results of random and fixed effects. The pooled effect estimate remained stable in sensitivity analyses, indicating robustness of

Table 1: Data extraction of included studies.

References	(Authors, Year)	Country	Aims	Sample	Intervention	Outcomes	Key Results
[30]	(Ritvo <i>et al.</i> , 2021)	Canada	Compared online mindfulness-based cognitive behavioral therapy (CBT-M) combined with standard psychiatric care to standard psychiatric care alone in youth (18-30 years old) diagnosed with major depressive disorder	I: 22/C:23	Online Mindfulness-Based Cognitive Behavioral Therapy	Anxiety (Beck Anxiety Inventory [BAI]), depression (Quick Inventory of Depressive Symptomatology [QIDS], mindfulness (5-Facet Mindfulness Questionnaire [FFMQ]), Pain (Brief Pain Inventory [BPI])	Found significant between-group differences in BDI-II, QIDS, anxiety (BAI), and pain (BPI) scores. The intervention group also showed significantly higher retention (91%) compared to the control group (39%).
[31]	(Nagamitsu <i>et al.</i> , 2022)	Japan	test the efficacy of two adolescent health promotion interventions: a well-care visit (WCV) with a risk assessment interview and counseling, and self-monitoring with a smartphone cognitive behavioral therapy (CBT) app.	WCVa group (n=68)/WCV with CBTb app group (n=71)/ Nonintervention group (n=72)	Well-Care Visits and a Smartphone Cognitive Behavioral Therapy App	Depression Self-Rating Scale for Children (DSRS-C), The Adolescent Health Promotion Short Form (AHP-SF), The Rosenberg Self-Esteem Scale (RSES), adolescents' health-related quality of life (The Pediatric Quality of Life Inventory (PedsQL)),	Both interventions showed a temporary reduction in depressive symptoms for high school students and a significant decrease in suicidal ideation. The app effectively improved self-monitoring skills.

the findings. Subgroup analyses were not performed in this study due to the limited number of articles included. Potential publication bias was analyzed using funnel plots (Supplementary File (S2)). Formal statistical tests for publication bias were not performed due to insufficient statistical power [29].

RESULTS

Study Selection

A total of 7341 records were identified through database searching across four databases. After duplicates were removed using Rayyan AI, the remaining records were screened based on titles and abstracts. During the screening process, records were excluded based on predefined criteria, including publication date outside the specified range (n = 5,850), records marked as ineligible by automation tools (n = 690), and other eligibility criteria such as subject area, article type, language, and age (n = 91). Additional records were excluded for other reasons (n = 52). Full-text articles were assessed for eligibility, and studies that did not meet the inclusion criteria were excluded. A total of 9 studies were included in the final meta-analysis (Fig. 1).

Study Characteristics

The included studies ranged in publication year from 2020 to 2025. The sample range was 45 to 2,522 participants. The interventions included mindfulness, cognitive-behavioral therapy (CBT), school-based programs, life skills training, and self-help. Interventions were delivered online, offline, or in a combination of online and offline (Table 1).

The studies were conducted across North America (n = 4), Europe (n = 2), Asia (n = 2), and Africa (n = 1), using individual RCTs (n = 7), pilot RCTs (n = 1), and waitlist-controlled RCTs (n = 1). Most interventions

References	(Authors, Year)	Country	Aims	Sample	Intervention	Outcomes	Key Results
[32]	(Moran <i>et al.</i> , 2024)	USA	examined intervention effects on the theoretically-informed therapeutic processes of emotion regulation, mindfulness, self-efficacy, and resilience, and the clinical outcomes of depression and anxiety symptoms	230 6 th -grade children enrolled in a public school in the western United States (I=160 / C=70)	Resilience for Healthy Kids (HK) is a school-based intervention designed to support mental health through targeting these processes.	Difficulties in Emotion Regulation Scale - Short Form (DERS-SF), Child and Adolescent Mindfulness Measure (CAMP), Patient Reported Outcome Measurement Information System (PROMIS) Pediatric Anxiety and Depressive Symptoms Scales	Participants receiving HK showed a large reduction in emotion regulation difficulties ($d = 0.84$). High attendance was associated with significant increases in self-efficacy.
[33]	(Lee <i>et al.</i> , 2020)	Taiwan	examined the preliminary effectiveness of a life skills training (LST) program modified based on Taiwan school characteristics and children's life experiences compared to a lectures-oriented curriculum	1288 were in the EAU group, and 1234 were in the LST group	school-based life skills program	Emotional regulation scale (ERS), Center for epidemiologic studies depression scale for Children (CESDC),	Students in the LST group reported significantly higher cognitive reappraisal scores. LST was associated with a reduction in depressive symptoms among males, but not females.
[34]	(Klim-Conforti <i>et al.</i> , 2021)	Canada	evaluate the impact of a Harry Potter-based mental health literacy curriculum, imparting cognitive behavioral therapy (CBT) skills, on suicidality and well-being in middle-schoolers.	Students (aged 11-14; grades 7-8) I=200/ C=230	Harry Potter-based CBT skills intervention (3-month teacher-delivered intervention embedded in the language arts curriculum)	The Life Problems Inventory (LPI) is a self-report scale measuring core symptoms of borderline personality disorder, including emotion dysregulation, interpersonal chaos, confusion about self, and impulsivity. The RCADS is a 47-item self-report measure for youth ages 6 to 18 assessing six domains of anxiety and depression.	Demonstrated significant improvement in suicidality, emotion regulation, self-concept, interpersonal difficulties, depression, and anxiety. Female participants largely drove improvements.
[35]	(Ramdhonoe - Dowlot <i>et al.</i> , 2021)	Mauritius	investigate the effectiveness of a preventative program for emotional problems among this population through a randomized waitlist-controlled trial (RCT).	100 children and adolescents aged 9 to 14 years were randomly allocated to either an SSL intervention group (IG) or a waitlist-control (WLC) group (I=50/C=50)	Super Skills for Life (SSL). Children participate in 45-min SSL sessions once a week, in groups of 8-9, within their regular setting.	Primary: Emotional and behavioral difficulties and positive attributes (The Strengths and Difficulties Questionnaire (SDQ)), Anxiety and depression (Revised Children's Anxiety and Depression Scale (RCADS)). Secondary: Cognitive emotion regulation strategies (The Cognitive Emotion Regulation Questionnaire-kids version (CERQ-k)), Self-esteem (The Rosenberg Self-Esteem Scale (RSE)), Attentional bias (Emotion Dot-Probe task), Inhibitory control (modified version of the flanker task)	Participation resulted in significant reductions in internalizing (anxiety/ depression) and externalizing (conduct/ hyperactivity) symptoms. Improvements were also found in inhibitory control and adaptive emotion regulation.

References	(Authors, Year)	Country	Aims	Sample	Intervention	Outcomes	Key Results
[36]	(Loucks <i>et al.</i> , 2021)	USA	Evaluate the effects of a mindfulness-based program, adapted to the young adult life course stage (age, 18-29 years), named Mindfulness-Based College (MB-College).	stage 1 randomized controlled trial (I = 47/C = 49) including students from three universities	9-week MB-College program	Primary: young adult health summary score, composed of key health risk factors: Physical Health Outcome (Body Mass Index), physical activity (International Physical Activity Questionnaire), fruit and vegetable intake, alcohol consumption, stress, loneliness (R-UCLA loneliness scale), and sleep duration. Secondary: hypothesized self-regulation mechanisms, including attention control (Sustained Attention to Response Task (SART)), interoceptive awareness (Multidimensional Assessment of Interoceptive Awareness (MAIA)), and emotion regulation (Self-Compassion Scale, Experiences Questionnaire)	Participants showed improved health summary scores (including BMI, diet, and sleep) and pronounced reductions in loneliness. Significant positive impacts were also noted for depressive symptoms and interoceptive awareness.
[37]	(Löchner <i>et al.</i> , 2021)	Germany	evaluates the effectiveness of the German version of the family-group-cognitive-behavioral (FGCB) preventive intervention for children of depressed parents	The 100 families (psychiatrically healthy children and parents with depression, EG = 50, CG = 50) with 135 children.	GuG-Auf ("Gesund und glücklich aufwachsen"), German adaptation of the FGCB. Six months and includes eight weekly sessions, as well as four monthly booster sessions (120 min each), designed to troubleshoot problems	Main outcome: Depressive symptoms in children (DIKJ questionnaire), Internalizing and externalizing symptoms self- and parent-report (YSR, CBCL questionnaire). Secondary outcome: ER child (FEEL-KJ questionnaire)	Found a significant reduction in self-reported internalizing and externalizing symptoms. No significant effects were detected for specific depressive symptoms or parent-reported psychopathology.
[38]	(Lindqvist <i>et al.</i> , 2020)	Sweden	examines whether affect-focused internet-based psychodynamic therapy (IPDT) with therapist support is more effective than an internet-based supportive control condition on reducing depression in adolescents	76 adolescents (I=38/C=38)	IPDT intervention consisted of eight therapist-supported self-help modules delivered over 8 weeks on a secure online platform	The primary outcome was self-reported depressive symptoms, measured with the QIDS-A17-SR. Secondary outcomes were measured using the Generalized Anxiety Disorder 7-item scale (GAD-7), the Montgomery Asberg Depression Rating Scale-self-rated (MADRS-S), and the Self-Compassion Scale short-form	IPDT was significantly more effective in reducing depression and anxiety, while increasing emotion regulation and self-compassion. Results remained stable at a 6-month follow-up.

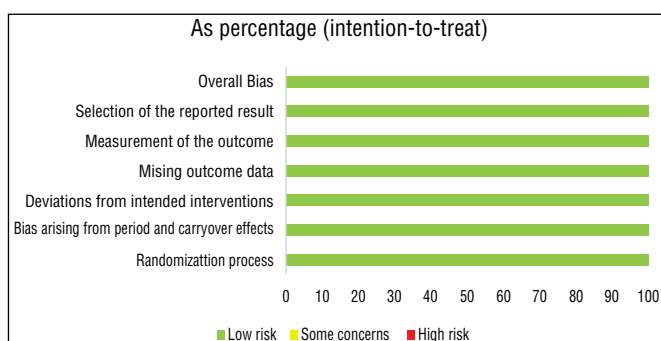


Fig. (2): Risk of bias.

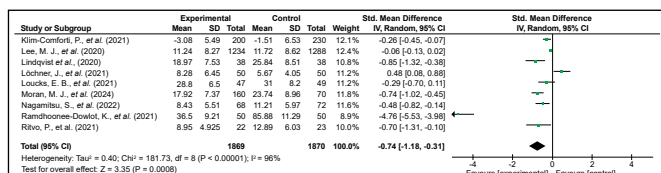


Fig. (3): Forest plot of the pooled standardized mean differences (SMD).

were delivered in clinical or healthcare settings ($n = 4$), followed by school settings ($n = 3$), one residential care institution study, and one university-based study. Intervention modalities across the nine studies varied, including digital or remote-based CBT ($n = 2$), digital psychodynamic therapy ($n = 1$), in-person CBT-based skills or curriculum-based programs ($n = 3$), in-person mindfulness or health coaching interventions ($n = 2$), and a family-based group CBT program ($n = 1$). Depressive outcomes were assessed using validated instruments (QIDS, DSRS-C, PROMIS Pediatric Anxiety and Depressive Symptoms Scales, CESDC, MFQ, ERC, RCADS, CESD-R, and DIKJ). Detailed study characteristics are presented in Table 1.

Risk of Bias

Risk of bias assessment using RoB 1 based on intention-to-treat analysis shows that the risk of bias assessment indicated that most included studies were classified as low risk across several domains, including the randomization process, bias due to period and carryover effects, deviation from the planned intervention, missing outcome data, outcome measurement, selection of reported results, and overall bias assessment. All bars on the graph appear 100% green, indicating low risk, with no portion of any concerns or high risk. Therefore, the methodological quality of the included studies is acceptable, and the meta-analysis findings suggest an adequate level of internal validity (Fig. 2).

Meta-Analysis Results

A random-effects meta-analysis of 9 randomized controlled trials showed that emotional regulation interventions were associated with a reduction in depressive symptoms (SMD = -0.64 , 95% CI: -1.52 to 0.25 ; $I^2 = 95.6\%$). However, the confidence interval crossed zero, indicating that the pooled effect was not statistically significant. Heterogeneity was extremely high ($I^2 = 95.6\%$). The high heterogeneity likely reflects

variation in study design, sample characteristics, and measurement tools used across studies. These differences likely contributed to inconsistent effect sizes across studies. The pooled effect and confidence intervals are presented in Fig. (3). These findings should be interpreted with caution due to the substantial heterogeneity observed across studies.

DISCUSSION

This study found that emotion regulation-based interventions were associated with a reduction in depressive symptoms compared with control conditions; however, the overall effect was not statistically significant. These findings suggest that emotion regulation may play a role as a potential therapeutic mechanism in the interventions of depression in adolescence. This developmental phase is characterized by increased emotional sensitivity, biological changes, social demands, and the search for identity, making the capacity to manage emotions a highly relevant protective factor [39]. Although several studies reported positive trends, the overall evidence remains inconsistent, indicating that the clinical impact of emotion regulation-based interventions requires further investigation [40].

Compared with the previous review, which often reports stronger effects of psychosocial interventions, the present findings show a more modest and non-significant pooled effect [41]. This discrepancy may be due to differences in intervention focus, as many prior studies did not specifically isolate emotion regulation as the primary mechanism [42]. In addition, variations in study design and population characteristics may further explain the inconsistency of findings.

The interventions vary in duration, format, and implementation setting. Some interventions were packaged as group-based programs, while other studies used individual settings [43]. These variations of interventions contribute to the heterogeneity of findings [44]. Interventions with a clear session structure, standardized curriculum, and trained facilitators may improve intervention quality and outcomes [24]. Another study also shows that intervention packages can depend on participants' characteristics [43].

The potential mechanisms underlying changes in depressive symptoms may be related to components targeting emotion regulation. The components included recognizing your emotions, coping adaptively, and choosing constructive responses to stressors [45]. Improved cognitive abilities, such as reappraisal, reduced rumination, and enhanced self-compassion, contribute to a reduction in the intensity and frequency of depressive symptoms [46]. This association aligns with cognitive and emotional models of depression, which emphasize the interaction between cognitive and emotional processes in the maintenance of mood disorders [47].

Programs implemented in clinical settings show that interventions need high intensity to improve their effects on depression [48]. Then, interventions based on community or schools demonstrated the potential for broader reach and scalability [49]. These findings suggest that emotion regulation-based interventions can be delivered across both community and clinical settings and at the levels of promotion, prevention, or cure [50]. Emotional regulation interventions can be integrated with the curriculum or educational programs to reach adolescents before depressive symptoms become more severe [51].

Most programs combined psychoeducation about emotions and mental health problems with other programs, such as experiential training in identifying, labeling, and monitoring emotional states in daily life [52]. Cognitive components in these interventions included mental health appraisals, catastrophizing, and negative automatic thoughts, whereas behavioral components included skills to avoid situations, problem-solving, and engagement in valued activities [53]. Mindfulness-based components were also incorporated to promote non-judgmental awareness and acceptance of internal experiences [54].

The observed pattern of outcomes appears closely linked to the intensity and dosage of these components. Interventions with more sessions, practice opportunities, and structured feedback were associated with greater reductions in depressive symptoms over time [22]. In contrast, briefer interventions with limited time can reduce fewer symptoms of depression [55]. This suggests that changes in symptoms of depression need sustainable interventions [56].

The high heterogeneity in the pooled SMD ($I^2 = 95.6\%$) likely reflects a combination of intervention type and instrument measurability. The included articles have different baseline samples, sample conditions, and ages. Some studies in a school setting can reduce depression symptoms because participants are in stable conditions [57]. Different from clinical settings, participants are more unstable and need more clinical treatment to reduce mental health problems. These differences suggest that the pooled estimate should be interpreted as an average effect across heterogeneous contexts, depending on participant characteristics and measurement approaches used across studies [58].

Another important consideration is that the observed effects may not be solely attributable to emotion regulation mechanisms. Several protocols integrated emotional regulation with other psychological interventions, such as interpersonal skills training and family involvement [57, 59]. This is a valuable result because the interventions need to be more comprehensive (physical, psychological, social, cultural, and spiritual). To solve mental health problems, collaboration between healthcare providers and families is important in supporting adolescents'

mental health, because they need a supportive environment to develop stable emotions and improve awareness among family [33, 60]. Family can help AYAs at home practice emotion regulation interventions and create a supportive environment to improve mental health.

LIMITATIONS

The RCT design of the reviewed studies strengthens causal inference, but several aspects still limit the interpretation of the findings. First, some studies had small sample sizes and short follow-up durations, making the long-term sustainability of effects unclear. Second, the use of self-report depression scales with varying instruments across studies has the potential to introduce perception bias and increase the heterogeneity of meta-analysis results. Third, the predominance of studies from high-income countries and indications of publication bias limit the generalizability of the findings to different cultural contexts and service systems. Further studies across countries and more comprehensive reporting of results, including those with small or non-significant effect sizes, are needed.

IMPLICATIONS

These findings suggest that mental health practitioners may consider integrating emotion regulation-based approaches into existing interventions for adolescents and young adults with depression. These interventions focus on developing skills in recognizing emotions, regulating emotional responses, and coping effectively with stress, and can be integrated with approaches such as mindfulness and cognitive behavioral therapy. These interventions can also be integrated with other interventions, such as mindfulness, cognitive-behavioral therapy, or other therapies.

The research implications highlight the need for study designs that more clearly elucidate the mechanisms of change. The use of mediation analysis, longitudinal tracking of changes in emotion regulation, and the integration of subjective and objective data will clarify the pathways through which interventions produce effects. This information is crucial for optimizing intervention components, allowing resources to be focused on the most impactful elements. Furthermore, implementation studies across diverse cultural contexts and service systems will help identify factors that support and hinder broad program adoption.

CONCLUSION

This study indicates that emotion regulation-based interventions may represent a promising, mechanism-focused approach for reducing symptoms of depression among AYAs. These interventions may offer a potential clinical strategy that could be integrated into mental health services to improve mental health among AYAs. The activity in these interventions focused on developing skills in recognizing emotions, interpreting

emotional experiences more adaptively, and applying positive coping strategies to manage stress. Because the interventions come from various countries, have different durations, and have specific characteristics, future research needs to improve the interventions through cultural adaptations and to conduct longer evaluations of outcomes.

LIST OF ABBREVIATIONS

AYAs	- Adolescents and Young Adults
CBT	- Cognitive Behavioral Therapy
RCT	- Randomized Controlled Trial
SMD	- Standardized Mean Difference
PRISMA	- Preferred Reporting Items for Systematic Reviews and Meta-Analyses
RoB 1	- Cochrane Risk of Bias 1 Tool
PROMIS	- Patient-Reported Outcomes Measurement Information System
QIDS	- Quick Inventory of Depressive Symptomatology
DSRS-C	- Depression Self-Rating Scale for Children
MFQ	- Mood and Feelings Questionnaire
RCADS	- Revised Children's Anxiety and Depression Scale
CESD-R	- Center for Epidemiologic Studies Depression Scale-Revised
DIKJ	- Depression Inventory for Children and Adolescents
ERS	- Emotional Regulation Scale
SSL	- Super Skills for Life
IPDT	- Internet-Based Psychodynamic Therapy
WCV	- Well-Care Visit

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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AUTHORS' CONTRIBUTION

MD : Conceptualization, methodology, systematic review design, literature search, study selection, data curation, formal analysis, meta-analysis, drafting the manuscript.
 RW : Methodology, systematic review design, literature search, study selection, data curation, reviewing, and editing the manuscript.
 ISS : Literature search, data searching and verification, manuscript drafting, and critical review.
 SPS : Literature search, analysis, critical review, and revising the initial draft.
 RH : Data analysis and manuscript drafting.

All authors have read and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

The authors used an artificial intelligence (AI) tool to assist with translation during manuscript preparation. All final content was reviewed and approved by the authors.

SUPPLEMENTARY MATERIAL

Supplementary material is available on the journal's website.

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