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ADMINISTRATIVE INFORMATION

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Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 18 June 2026 and was last updated on 18 June 2026.

INTRODUCTION

Review question / Objective This systematic review aimed to synthesize the available evidence on art therapy interventions for depression in young people aged 15–24 and to identify the key intervention characteristics associated with improved psychosocial outcomes; to address the gaps in the existing literature—particularly the limited systematic synthesis of study designs, interventions, and outcomes in this field—the review examined literature published over the past ten years and focused on two primary questions: first, what are the key intervention characteristics of art therapy for young people with depression identified in empirical studies, and second, what psychosocial outcomes are associated with these interventions in this population.

Condition being studied The condition being studied in this systematic review is depression in young people aged 15–24 years, encompassing major depressive disorder, minor depression, and

clinically significant depressive symptoms as measured by validated instruments such as the Beck Depression Inventory (BDI), Patient Health Questionnaire-9 (PHQ-9), or Center for Epidemiologic Studies Depression Scale (CES-D).

METHODS

Participant or population The population addressed in this systematic review comprises young people aged 15–24 years with depression or clinically significant depressive symptoms, including major depressive disorder, minor depression, or elevated scores on validated instruments such as the Beck Depression Inventory (BDI), Patient Health Questionnaire-9 (PHQ-9), or Center for Epidemiologic Studies Depression Scale (CES-D). Beyond this core definition, the included studies also covered diverse subgroups, including adolescents with chronic physical illnesses, trauma-exposed youth, and culturally or religiously distinct populations, reflecting the broad applicability of art therapy across different clinical and cultural contexts.

Intervention The intervention evaluated in this systematic review is any form of art therapy, broadly defined to include visual arts (e.g., drawing, painting, mandala, collage), music therapy, dance/movement therapy, digital art therapy, and multimodal creative arts interventions, as well as art therapy combined with other psychological treatments such as cognitive-behavioral therapy (CBT). This inclusive definition is consistent with contemporary creative arts therapies literature. The included studies examined a wide range of delivery formats, including traditional face-to-face studio sessions, digital platforms (e.g., mobile mandala apps), online videoconferencing-based interventions, and even brain-computer interface systems that generate real-time digital art feedback based on electroencephalography (EEG) signals. In terms of therapeutic structure, interventions ranged from manualised protocols with fixed session frameworks (e.g., Phenomenological Art Therapy for Depression, PATd, and its adolescent version PATd-y; the Vasarhelyi method) to flexible, camp-based or school-based programmes (e.g., Creativity Camp, Pre-Texts). Purely recreational or non-therapeutic art activities, as well as non-art-based interventions such as pharmacotherapy alone or standard CBT without an art component, were explicitly excluded from this review.

Comparator In terms of comparator, this systematic review did not impose a requirement for a control group, as both controlled and uncontrolled empirical designs were eligible for inclusion according to the PICOS criteria. Consequently, the included studies encompassed a range of comparative designs, including within-subjects pre-post designs without a separate control group, randomized controlled trials with waitlist controls or treatment-as-usual comparisons, and uncontrolled case studies. Where controlled designs were employed, comparisons were made against conditions such as conventional outpatient care, non-art alternative activities, or no-treatment baselines. Notably, studies comparing art therapy combined with other components against pharmacotherapy alone or standard cognitive-behavioral therapy without an art component were not excluded, provided the intervention itself contained an art therapy element; however, the primary focus of this review remained on the art-based interventions themselves and their associated psychosocial outcomes, rather than on formal pairwise comparisons. This inclusive approach reflects the exploratory nature of the review and the heterogeneity of the current evidence base in this emerging field.

Study designs to be included Based on the PICOS criteria and the screening process described in the manuscript, the study designs included in this systematic review are peer-reviewed empirical studies of quantitative, qualitative, or mixed-methods nature, published in English between January 2016 and January 2026. The review imposes no restriction on the presence of a control group; both controlled designs (e.g., randomised controlled trials, quasi-experimental studies with comparison groups) and uncontrolled empirical designs (e.g., single-group pre-post studies, case studies, and case series) are eligible. In addition.

Eligibility criteria The eligibility criteria for this systematic review were predefined using the PICOS framework (Population, Intervention, Comparison, Outcomes, and Study Type) to ensure a transparent and reproducible selection process.

Regarding population, the review included young people aged 15–24 years with a diagnosis of depression or clinically significant depressive symptoms, including major depressive disorder, minor depression, or elevated scores on validated instruments such as the Beck Depression Inventory (BDI), Patient Health Questionnaire-9 (PHQ-9), or Center for Epidemiologic Studies Depression Scale (CES-D). Participants outside this age range, as well as individuals without depression or with only transient low mood, were excluded.

Regarding the intervention, any form of art therapy was considered eligible, broadly defined to include visual arts (e.g., drawing, painting, mandala, collage), music therapy, dance/movement therapy, digital art therapy, multimodal creative arts interventions, and art therapy combined with other psychological treatments such as cognitive-behavioral therapy (CBT). In contrast, non-art-based interventions (e.g., pharmacotherapy alone or standard CBT without an art component) and purely recreational or non-therapeutic art activities were explicitly excluded.

Regarding the comparator, the review imposed no requirement for a control group; both controlled designs (e.g., randomised controlled trials, quasi-experimental studies) and uncontrolled empirical designs (e.g., single-group pre-post studies, case studies) were eligible, provided they reported original empirical data. Studies without empirical data—such as theoretical or conceptual papers—were excluded.

Regarding outcomes, the review focused on psychosocial outcomes related to depression, including but not limited to: reduction in depressive, anxiety, and post-traumatic stress symptoms; improvement in self-esteem, self-efficacy, well-being, quality of life, social connectedness, resilience, and treatment engagement/adherence. Studies reporting only physical or biological outcomes (e.g., HbA1c, cortisol levels, vital signs) without any mental health or psychosocial measure were excluded.

Regarding study type, the review included peer-reviewed quantitative, qualitative, or mixed-methods empirical studies published in English between January 2016 and January 2026. Systematic reviews, meta-analyses, literature reviews, conference abstracts, book chapters, dissertations, grey literature, and non-English publications were excluded.

These criteria were applied consistently during both the title-and-abstract screening and the full-text review stages, resulting in the inclusion of 19 studies that met all conditions.

Information sources The systematic literature search was conducted across three electronic databases: Web of Science (WOS), Scopus, and CINAHL. These databases were selected to ensure comprehensive coverage of both biomedical and psychosocial literature, with CINAHL providing additional specialised indexing of allied health and mental health publications. The search was limited to peer-reviewed journal articles published in English between 1 January 2016 and 1 January 2026, with no restrictions on study location. In addition to the primary database searches, manual screening of reference lists of all included studies and relevant reviews was performed to identify additional eligible records not captured by the electronic searches.

All database searches were completed on 31 January 2026. The search results were exported and managed using reference management software, and duplicates were removed prior to screening.

Main outcome(s) The main outcomes assessed in this systematic review are psychosocial outcomes related to depression in young people. The primary outcome is the reduction of depressive symptoms, as measured by standardised and validated self-report or clinician-rated instruments, including but not limited to the Beck Depression Inventory (BDI), the Patient Health Questionnaire-9 (PHQ-9), and the Center for Epidemiologic Studies

Depression Scale (CES-D). Secondary outcomes encompass a broad range of psychosocial variables, including anxiety symptoms, post-traumatic stress symptoms, self-esteem, self-efficacy, psychological well-being, quality of life, social connectedness, resilience, and treatment engagement or adherence. The review also captures qualitative outcome data, such as participants' subjective experiences, perceived therapeutic benefits, and satisfaction with the intervention. Studies reporting only physical or biological endpoints (e.g., HbA1c, cortisol, vital signs) without any mental health or psychosocial measure are excluded from outcome analysis. Due to the heterogeneity of outcome measures across studies, a narrative synthesis of all reported outcomes is conducted.

Quality assessment / Risk of bias analysis

Methodological quality and risk of bias were assessed using the Crowe Critical Appraisal Tool (CCAT), selected for its applicability to both qualitative and quantitative study designs. The CCAT comprises eight domains: preliminaries, introduction, design, sampling, data collection, ethics, results, and discussion. Each domain is scored from 0 to 5, yielding a maximum total score of 40. Two independent reviewers evaluated all included studies, resolving disagreements through consensus discussion, achieving an inter-rater agreement above 90%. Total CCAT scores ranged from 30 to 38 (mean = 33.5, SD = 2.76), indicating generally satisfactory methodological quality across the included studies. No studies were excluded based on quality scores, as the review aimed to provide a comprehensive overview of the field rather than restrict to only high-quality studies. A narrative synthesis of quality domains is presented alongside the thematic findings. Given the heterogeneity of study designs (including RCTs, quasi-experimental, pre-post, qualitative, and case studies), formal meta-analytic risk-of-bias weighting was not performed. Instead, quality appraisal findings are used to contextualise the strength of the evidence and inform the interpretation of results, with particular attention paid to sources of potential bias such as selection bias, measurement bias, and attrition.

Strategy of data synthesis Due to the anticipated heterogeneity in study designs, intervention types, and outcome measures, a meta-analysis was not feasible. Therefore, a narrative thematic synthesis was conducted, following Braun and Clarke's six-phase framework: familiarisation, coding, generating themes, reviewing themes, defining themes, and interpretation. This approach allowed integration of both quantitative and qualitative

findings. Quantitative data were summarised descriptively (e.g., publication year, country, intervention type, sample size). For the qualitative synthesis, all 19 included studies were uploaded into ATLAS.ti 9 software for inductive coding, based on metadata and content (e.g., objectives, design, main findings). Frequent keywords were identified and refined after repeated reviews; similar subthemes were merged, and related ones were grouped under broader themes. The final thematic framework comprised three core domains: (1) Specific Populations and Cultural Adaptation, (2) Intervention Formats and Technological Innovation, and (3) Therapeutic Structure and Core Components. The synthesis process was iterative and involved discussion among reviewers to ensure reliability and consistency. Findings are presented both narratively and through visual mapping (e.g., thematic network diagrams), with supporting quotations from qualitative studies where applicable. This approach ensures a comprehensive and transparent synthesis of the heterogeneous evidence base.

Subgroup analysis Due to the heterogeneity of study designs, intervention types, and outcome measures, along with the limited number of included studies ($n=19$), a formal quantitative subgroup analysis (e.g., meta-regression or subgroup meta-analysis) was not feasible. However, a narrative exploration of potential subgroup effects was conducted by examining variations across key participant characteristics (e.g., age subgroups, clinical populations such as those with chronic illness or trauma, and cultural/religious minorities), intervention formats (e.g., digital/online, face-to-face, multimodal), and therapeutic structures (e.g., manualised protocols versus flexible camp-based programmes). These subgroup-related patterns were integrated into the thematic synthesis and are discussed in the results, providing qualitative insights into how intervention characteristics may differentially affect outcomes in specific populations. For instance, culturally adapted interventions appeared particularly effective for minority groups, while digital formats showed promise in improving accessibility. However, these findings are exploratory and should be interpreted with caution. Future research with larger, more homogeneous samples and consistent outcome reporting is required to enable definitive subgroup analyses.

Sensitivity analysis A formal quantitative sensitivity analysis (e.g., excluding studies based on quality scores or study design) was not performed in this review. This decision was based

on several considerations. First, the considerable heterogeneity in study designs (including RCTs, quasi-experimental, pre-post, qualitative, and case studies), intervention types, and outcome measures precluded meaningful meta-analytic sensitivity testing. Second, the review aimed to provide a comprehensive overview of the field rather than restrict inclusion to only high-quality or homogeneous studies, as the evidence base in this area remains emerging. Third, with only 19 included studies, excluding studies based on quality thresholds would have substantially reduced the breadth of the synthesis and limited the ability to capture diverse intervention characteristics and populations. Instead, methodological quality was assessed using the CCAT, and findings were interpreted in light of study quality variations. A narrative sensitivity exploration was conducted by examining whether the main findings (the three core themes) remained consistent across different study designs and quality levels. The core themes identified were broadly consistent across study types, suggesting the robustness of the thematic framework despite methodological heterogeneity.

Country(ies) involved China.

Keywords art therapy, depression, young people, systematic review, psychosocial outcomes.

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