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Review

Creative Arts Therapies, Psychomotor Therapy, and Play Therapy for People with Severe Intellectual Disabilities and Challenging Behaviour: A Scoping Review of Interventions and Outcomes

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Abstract

Individuals with severe intellectual disabilities and challenging behaviour often face limited access to effective therapeutic interventions, as conventional approaches like cognitive behavioural therapy may not be suitable. Creative arts therapies (CATs), psychomotor therapy, and play therapy have emerged as promising non-verbal alternatives, yet their use in this population remains underexplored. This scoping review aimed to map and synthesize the existing evidence on the application and outcomes of these interventions for individuals with severe intellectual disabilities and challenging behaviour. A comprehensive search was conducted across eight databases in May 2023 (with an update of the search in June 2025). Thirteen studies met the inclusion criteria, namely eight quantitative and five qualitative designs. Interventions included music therapy (n = 7), art therapy (n = 4), a combination of both (n = 1), and play therapy (n = 1); no studies on psychomotor therapy were identified. Reported outcomes were grouped into five domains: cognitive, psychological and emotional, social and interactional, communicative, and creative domain. Improvements were observed in areas such as attention, emotional regulation, social responsiveness, and communicative expression, particularly in structured and attuned therapeutic environments. However, most studies had methodological limitations, including small sample sizes and limited standardisation. These findings suggest potential benefits of CATs and play therapy, while highlighting the need for further research into underrepresented modalities and the use of rigorous single-case experimental designs.

Keywords: severe intellectual disability; challenging behaviour; creative arts therapies; music therapy; psychomotor therapy; play therapy; scoping review

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1. Introduction

Challenging behaviour, such as aggression, self-injury, and stereotypic behaviours, are frequently observed in people with intellectual disabilities [1,2]. These behaviours occur in approximately 10% to 25% of people with intellectual disabilities [1,3] and are more prevalent in those with severe intellectual disabilities [4,5]. People with a severe intellectual disability typically function at an intellectual level corresponding to an intelligence quotient

(IQ) of approximately 20–35. They have very limited communication and language abilities, with minimal capacity to acquire academic skills. Motor impairments are common, and individuals require daily support and supervision across most areas of life. Although some may develop basic self-care skills through intensive training, they generally remain care dependent and need consistent, lifelong support in educational, occupational, and home settings [6,7]. The communication difficulties, particularly in non-verbal individuals, further heighten the risk of challenging behaviours, which are increasingly recognized not merely as symptoms to be removed, but as meaningful expressions of unmet needs, emotions, or attempts to communicate [8]. From this perspective, supporting people with severe intellectual disabilities requires approaches that allow for communication, self-expression, and relational understanding, rather than only aiming at behaviour reduction. In people with severe intellectual disabilities, these behaviours can manifest in destructive actions and compulsive stereotypic movements that disrupt caregiving and daily activities [9,10]. Such behaviours often necessitate intensive interventions or pharmacological management, contributing to emotional strain, stress, injuries, and burnout among family members and healthcare professionals [11,12].

Traditional therapeutic approaches, such as cognitive behavioural therapy (CBT), have demonstrated effectiveness in managing aggression among people with mild to borderline intellectual disabilities [13]. However, CBT is less appropriate for people with severe intellectual disabilities due to its reliance on cognitive and reflective capacities that many in this population lack [7]. A growing body of research highlights emotion regulation as a key transdiagnostic mechanism of action underlying behavioural and psychological challenges in this group [14,15]. Given that traditional cognitive-based interventions may not be effective, alternative approaches targeting emotion regulation are crucial.

Creative arts therapies (CATs), psychomotor therapy, and play therapy offer promising alternatives for people with severe intellectual disabilities by utilizing non-verbal, expressive strategies that bypass cognitive barriers [16]. CATs encompass various therapeutic disciplines, including art therapy, dance therapy, drama therapy, music therapy, psychodrama, and bibliotherapy. Psychomotor therapy focuses on movement-based interventions to enhance emotional regulation and behavioural control, while play therapy provides structured, interactional methods that facilitate emotional expression. Importantly, these approaches align with a humanistic perspective, as they create opportunities for individuals to express themselves, communicate, and engage relationally through creative and embodied means, rather than focusing only on reducing challenging behaviour. These approaches enable people with intellectual disabilities, particularly those who are non-verbal, to explore and communicate emotions in natural and accessible ways [17–19]. Their effectiveness can be understood through theories of communicative synchronization and entrainment, which describe how rhythmic, affective, and playful interactions underpin early caregiver–infant relationships [20,21]. Moreover, framing these therapies in terms of transdiagnostic mechanisms aligns with the Research Domain Criteria (RDoC) framework [22]. Structured and predictable routines may support arousal regulation and attentional engagement, empathic attunement fosters co-regulation and emotional safety, and shared creative tasks elicit positive affect, group cohesion, and engagement, allowing safe exploration and expression of internal states. These mechanisms provide a strong theoretical rationale for why creative, embodied, and playful therapies are particularly suitable for people with severe intellectual disabilities. For example, music therapy, is often recommended for people with sensory-oriented profiles or difficulty processing emotions [23,24], while dance and movement therapies allow for the physical expression of emotions, reducing stress and aggression [25,26]. Similarly, drama therapy provides structured role-play opportunities that facilitate emotional processing and social interaction [27].

Although studies highlight the therapeutic potential of CATs, psychomotor therapy, and play therapy in care settings, much of the existing research has focused on people with mild intellectual disabilities [16,17]. There remains a significant gap in understanding how these interventions are applied and what outcomes are reported for people with severe intellectual disabilities and challenging behaviour. This scoping review aims to map and synthesize existing literature on CATs, psychomotor therapy, and play therapy in this population, with a focus on reported therapeutic outcomes and the contexts in which these interventions are delivered, to inform future research and practice.

2. Methods

This scoping review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guidelines [28] and adhered to the reporting standards outlined by the American Psychological Association [29]. The methodology followed the framework proposed by Arksey and O'Malley [30], encompassing the following stages: identifying the research question, identifying relevant studies, study selection, charting the data, and collating, summarizing, and reporting the results. The review was initially registered in PROSPERO (CRD42023466153) as a systematic review. During the project, the methodology was revised to a scoping review to better reflect the exploratory nature of the available evidence. This change was documented and updated in the PROSPERO record.

2.1. Identifying the Research Question

The research question guiding this scoping review was: What are the reported outcomes of CATs, psychomotor therapy, and play therapy for people with severe intellectual disabilities and challenging behaviour? This review did not aim to analyse variations in population characteristics but rather focused on synthesizing the outcome domains reported across diverse studies. This question was developed to support a broader understanding of the therapeutic value of creative interventions in this underrepresented population and to identify conceptual and empirical gaps in the literature.

2.2. Identifying Relevant Studies

A comprehensive search strategy was developed in consultation with an experienced information specialist. Systematic searches were conducted across eight electronic databases: Medline ALL, Embase, CINAHL, PsycINFO, Web of Science, Cochrane Central, ERIC, and Google Scholar. The search was performed on 30 May 2023 and limited to peer-reviewed journal articles published in English. An updated search using the same search terms and databases was carried out on 12 June 2025. The search strategy was informed by the systematic approach described by Bramer et al. [31] to maximize sensitivity and specificity in identifying relevant literature.

The search strategy included controlled vocabulary terms (e.g., MeSH and Emtree) and free-text terms covering three core concepts: (1) severe intellectual disability, (2) challenging behaviour, and (3) relevant therapeutic interventions (CATs, psychomotor therapy, and play therapy). Boolean operators were used to combine terms: 'AND' linked the core concepts, and 'OR' grouped synonyms within each concept. Table 1 presents the detailed Embase search strategy. Comparable strategies were applied to all databases to ensure consistency across platforms.

Table 1. Search strategy for Embase database.

Embase Final Search Strategy
('mentally disabled person'/de OR ('cognitive defect'/mj NOT ('Alzheimer disease'/exp/mj OR 'dementia'/exp/mj)) OR 'developmental disorder'/exp OR 'developmental disability'/de OR 'mild cognitive impairment'/de OR 'learning disorder'/exp OR 'intellectual impairment'/de OR 'mental deficiency'/de OR 'Down syndrome'/de OR 'cognitive impairment no dementia'/de OR 'Learning disorder'/exp OR 'Smith Magenis syndrome'/exp OR 'Rett syndrome'/exp OR 'Lesch Nyhan syndrome'/exp OR 'Prader Willi syndrome'/exp OR 'happy puppet syndrome'/exp OR 'fragile X syndrome'/exp OR 'cat cry syndrome'/exp OR 'de Lange syndrome'/exp OR 'Rubinstein syndrome'/exp OR 'velocardiofacial syndrome'/exp OR 'DiGeorge syndrome'/exp OR 'communication disorder'/exp OR 'acquired brain injury'/exp OR 'traumatic brain injury'/exp OR (((intellectual*) NEAR/3 (disabil* OR disorder* OR impair* OR defici* OR retard* OR handicap* OR difficult* OR limitation* OR delay*)) OR ((mental*) NEAR/3 (disabil* OR impair* OR defici* OR incap* OR retard* OR handicap* OR difficult* OR limitation* OR delay*)) OR ((down) NEAR/2 (syndrom*)) OR intellectual-development-dis* OR ((((cognitive*) NEAR/3 (dysfunct* OR defec* OR impair*))) NOT (dement* OR Alzheimer* OR Parkinson*)) OR ((develop*) NEAR/3 (disorder* OR dysfunct* OR deviat*)) OR ((learning) NEAR/2 (disab* OR deficit* OR impair* OR difficult* OR limit* OR delay*)) OR ((neurodevelop*) NEAR/3 (disab* OR impair* OR defici* OR incap* OR retard* OR handicap* OR difficult* OR limit* OR delay*)) OR multiple-disabilit* OR VSPINTELLECTUAL-IMPAIR* OR cognitive-disabilit* OR learning-disorder* OR ((development* OR communication*) NEXT/1 (disorder*)) OR Retarded OR moron* OR imbecile* OR feebleminded OR feeble-minded OR Smith-Magenis OR Rett* OR Lesch-Nyhan OR Lesch-and-Nyhan OR ((Prader) NEAR/3 (Willi)) OR Angelman OR happy-puppet OR fragile*-X OR ((cri OR cry) NEAR/3 (cat* OR chat*)) OR de-Lange OR Rubinstein-taibi OR Rubinstein-syndrom* OR velocardiofacial OR DiGeorge OR Di-George OR ((5p OR 17) NEAR/1 (delet* OR syndrom* OR minus)) OR Lejeune OR ((complex*) NEAR/3 (need*)) OR ((severe) NEAR/3 (cerebral-palsy)) OR profound-and-multipl* OR ((acquired OR traumatic*) NEAR/3 (brain-injur*))):ab,ti,kw) AND ('art therapy'/exp OR 'dance therapy'/exp OR 'drama therapy'/exp OR 'music therapy'/exp OR (('art'/de OR 'drawing'/exp OR 'painting'/exp OR 'music'/exp OR 'dancing'/exp) AND ('therapy'/de)) OR 'psychomotor therapy'/exp OR 'play therapy'/exp OR (((drama OR dance * OR dancing OR artistic OR music* OR art OR arts OR ballet OR sing OR singing OR drawing OR painting OR paint OR draw OR sculpt* OR sketching OR sketches OR etch* OR doodl* OR still-life OR tracing OR mandala* OR psychomotor* OR psycho-motor* OR movement* OR bod*-aware* OR bod*-orient* OR mind-bod*) NEAR/4 (therap* OR treatment* OR psychotherap* OR psycho-therap* OR activit* OR intervent* OR color* OR colour* OR activit* OR train*)) OR dramatherap* OR ((play*) NEAR/3 (instrument*)) OR role-play* OR ((clay* OR play) NEAR/3 (therap*)) OR psychodrama* OR ((expressive* OR creative*) NEAR/3 (movement* OR therap*)) OR ((therap*) NEAR/3 (movement*)) OR psychomotor-physiotherap * OR psycho-motor-physiotherap* OR mind-body-intervent* OR mindbody-intervent* OR bod*-psychotherap* OR bod*-psycho-therap* OR psychomotor-physiotherap* OR psycho-motor-physiotherap*):ab,ti,kw) NOT ([Conference Abstract]/lim OR [preprint]/lim)

2.3. Study Selection

The selection process followed the PRISMA-ScR guidance [28] and comprised four phases: identification, screening, eligibility, and inclusion (see Figure 1). During the identification phase, all retrieved references were imported into EndNote 20 for deduplication. After removing duplicates, in total 14,200 unique records remained. Title and abstract screening was conducted independently by two reviewers: the first author screened all records, while the second and fourth authors screened one-third and two-thirds, respectively. Studies were included if they focused on people with severe intellectual disabilities

and challenging behaviour and examined the specified interventions (see Table 2). The review included participants of all age groups to capture the full scope of available evidence. Exclusion criteria included dissertations, book chapters, reviews, and essays. Discrepancies during screening were resolved through consultation with a third reviewer. Where abstracts were missing or unclear, the full text was retrieved to avoid excluding potentially relevant studies. The percentage of agreement between raters was 98.4%, indicating high consistency. Inter-rater reliability, assessed using Cohen's kappa, yielded a value of 0.79, reflecting substantial agreement. A total of 570 studies progressed to full-text screening.

Table 2. Inclusion and exclusion criteria.

Element	Inclusion Criteria	Exclusion Criteria
	Term(s)	
Population	Studies focusing on people of any age and gender with severe intellectual disabilities and challenging behaviour. Studies that include mixed populations (e.g., mild/moderate intellectual disabilities or other disabilities) are included only if results for the target group are reported separately or if no statistical differences are reported between groups.	Studies focusing only on people without severe intellectual disabilities and/or challenging behaviour. Studies including mixed populations without separate results for the target group or where statistical differences are reported between groups.
Intervention	Studies investigating the use of creative arts therapies, psychomotor therapy, or play therapy in the target population.	Studies not focusing on creative arts therapies, psychomotor therapy, or play therapy.
Comparison	Not applicable.	Not applicable.
Outcome	Not restricted by outcome.	Not applicable.
Study type	Empirical studies using qualitative, quantitative, or mixed-method designs.	Non-empirical publications (e.g., reviews, theoretical papers, editorials), dissertations, or conference abstracts without full data.

During the eligibility phase, full texts were independently reviewed by the first author and either the second or fourth author. Inter-rater agreement was 98.3%, with a Cohen's kappa of 0.82, indicating a good agreement. Discrepancies were resolved through consensus with an additional author. When information was unclear or missing, corresponding authors were contacted. Of the three contact attempts, two yielded responses and those studies were included; the study with no response was excluded. In total, thirteen studies met the inclusion criteria and were included in the review.

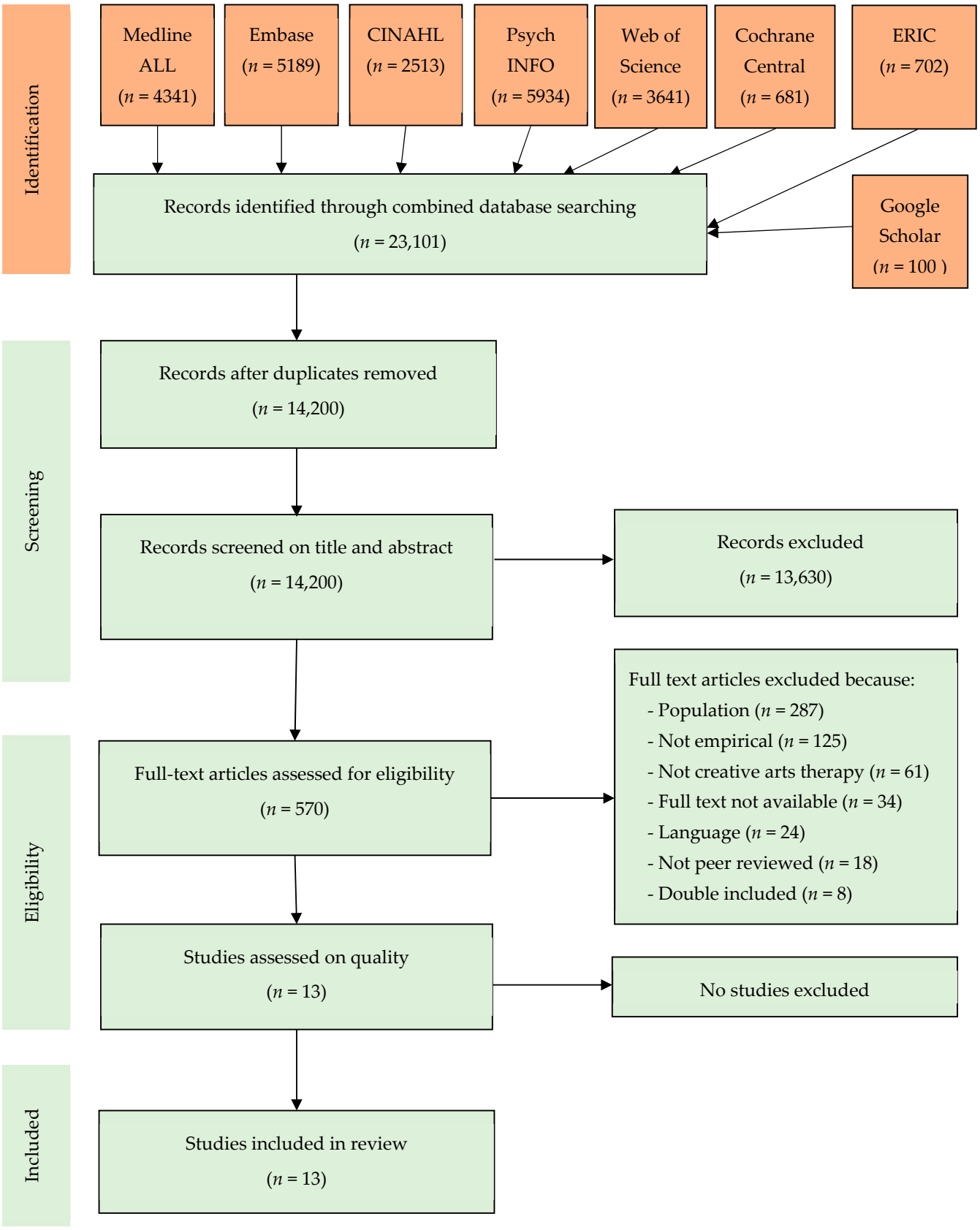

Figure 1. Flowchart of study selection for scoping review.

2.4. Charting the Data

A standardized data charting form was developed to extract key information from the included studies. Data extracted included publication details, study design, population characteristics, intervention type, outcomes measured, and key findings. Charting was conducted independently by the first author and a second reviewer using ATLAS.ti software version 25. Following independent extraction, the two reviewers met to compare and reconcile their findings, ensuring consistency and completeness. Discrepancies were resolved through discussion, with input from a third author when necessary.

2.5. Critical Appraisal of Included Studies

Although not required in scoping reviews, a methodological quality assessment was conducted using the Mixed Methods Appraisal Tool (MMAT; [32]) to provide additional context regarding the strength of evidence. Each study was first independently evaluated by two reviewers against two initial screening criteria: clarity of research questions and appropriateness of data collection. All thirteen studies met these criteria. Subsequently, the studies were assessed against five design-specific quality criteria, with each criterion contributing 20% to the total quality score. Discrepancies were resolved through discussion to reach consensus. Among the included studies, three scored 100%, four scored 80%, four scored 60%, and two scored 40%. The inter-rater agreement for quality appraisal agreement was 87.3% after resolving discrepancies through consensus.

2.6. Collating, Summarizing, and Reporting the Results

A narrative synthesis was conducted in accordance with the framework proposed by Popay et al. [33], providing a structured yet interpretive method suited to synthesizing findings from diverse methodological designs. The synthesis began with familiarisation, during which the first author and a second researcher independently re-read all included studies to extract and code data from the results sections. This initial coding process remained close to the original language of the studies and focused on identifying reported outcomes relevant to the review objectives. Through an iterative process of comparison and discussion, the authors collaboratively refined and clustered the codes, exploring relationships within and across studies in terms of populations, interventions, contexts, and reported effects.

Outcomes were then inductively grouped into five overarching domains—cognitive, psychological and emotional, social and interactional, communicative, and creative domains. These domains were not predetermined but emerged through repeated engagement with the data and reflected common threads across the included literature. This thematic structure served to organise the diverse findings in a coherent way and allowed for the identification of patterns and distinctions across studies. The robustness of the synthesis was considered in light of the methodological quality of the included studies and the consistency of reported outcomes. Although the studies varied in design and quality, all were retained due to their relevance and contribution to the research aims.

The synthesis process was collaborative and iterative, with ongoing input and validation from the broader research team. This flexible yet systematic approach enabled the integration of findings across qualitative and quantitative studies and provided a comprehensive understanding of the impact of CATs, psychomotor therapy, and play therapy on people with severe intellectual disabilities and challenging behaviour.

3. Results

Following a rigorous quality assessment process, thirteen studies were included in this review. These studies employed diverse methodologies: five used qualitative designs

and eight applied quantitative methods. Geographically, the studies were conducted in five countries: United States (n = 4), United Kingdom (n = 4), Nigeria (n = 2), South Africa (n = 1), and China (n = 1).

All included studies focused on people with severe intellectual disabilities and challenging behaviour. Most studies (n = 7) investigated music therapy interventions, four focused on art therapy, one examined a combination of both, and one study focused on play therapy. Five studies involved individual therapy, while eight employed group-based formats; two of these combined both individual and group sessions. Study populations varied: seven studies focused on children, five on adults with severe intellectual disabilities, and one explored the perspectives of family members and professionals. The review included three single-case studies with individual participants, while other studies involved group interventions with sample sizes ranging from two to twenty-four participants. Please see Table 3 for additional characteristics of the included studies.

Table 3. Characteristics of included studies.

Authors and Year	Country	Study Design	Population	Intervention	Outcome Measures	Key Findings	Study Objective	Quality MMAT
Adebayo & Adeife [34]	Nigeria	Pre-test–post-test control group design	24 adolescents (12M, 12F), aged 14–20 years, diagnosed with moderate to severe intellectual disabilities	Art therapy delivered over 10 weeks (three 1 h sessions per week), including painting, sketching, colouring, free drawing, colouring of objects and papier mâché	Attention Observation Rating Scale (AORS; r = 0.96), pre- and post-intervention	Significant improvement in attention scores post-intervention. Gender and severity level did not moderate the effects	To determine whether art therapy improves attention in adolescents with intellectual disabilities	60%
Dada et al. [35]	Nigeria	Pre-test–post-test control group design	24 children (12M, 12F), aged 8–18 years, attending a special education school and diagnosed with moderate to severe intellectual disabilities	Music therapy for 6 weeks (three 2 h sessions per week), involving singing, rhythm instruments, dancing, and karaoke	Attention Observation Rating Scale (AORS, r = 0.88), pre- and post-intervention	Children receiving music therapy showed significant attention gains. Gender and severity had no impact on outcomes	To assess the effect of music therapy on attention in children with intellectual disabilities	40%
DeBedout et al. [36]	United States	Within-subject experimental design (5 × 2 min trials per participant in counterbalanced order)	17 children (aged 5–13 years) with severe intellectual disabilities and sensory impairments; majority were non-ambulatory (10M, 7F)	Auditory stimuli including recorded music, interactive guitar playing, passive music listening, and activating musical toys	Behavioural coding of frequency of movement and vocalizations every 10s across 5 stimulus domains	Highest engagement observed during interactive music, followed by toy and recorded music. Passive listening and silence showed least engagement	To investigate children's behavioural responses to different types of auditory and musical stimuli	80%
Ford [37]	United States	Single-subject reversal (ABACADA) design	One 23-year-old woman with severe developmental disabilities, including motor and visual impairments and limited communication	Four daily intervention phases (30 min each): baseline, passive music, interactive music, water play, and a blocking condition	Video-coded frequencies of self-injurious behaviour (10 min coded segments per session)	Passive music reduced teeth-grinding episodes; head-hitting disappeared entirely during both music conditions; blocking and water play impacted other behaviours	To compare the effectiveness of music and non-music interventions in reducing self-injurious behaviour	80%
Hairston [38]	United States	Repeated-measures design with baseline, intervention, and withdrawal phases (5 weeks each)	8 children (mean age 8 years, 10 months); 4 with autism and 4 with non-autistic developmental delays, all with severe to profound intellectual disabilities (ID)	Daily music and art therapy sessions (7 min per session) incorporated into ongoing developmental therapy	SWAN behavioural scale and DTORF developmental profiles assessed at 4 intervals	Non-autistic children showed developmental progress; all children exhibited behavioural improvements during the intervention phase	To compare developmental and behavioural responses to music and art therapy between autistic and non-autistic children	100%
Hooper [39]	United Kingdom	Within-subject repeated measures design (5 music and 5 control sessions following baseline)	4 adults (1M, 3F; aged 33–51) with severe intellectual disabilities and behaviour challenges, living in a supported apartment	Peer-oriented music therapy sessions (30 min), compared with cooperative indoor ball games	Video-recorded coding of positive/negative, prompted/unprompted peer interactions	Both conditions increased positive interactions, but music therapy fostered more sustained and emotionally engaged social interaction	To explore whether music therapy can enhance peer interaction in adults with intellectual disabilities	40%
Hooper [40]	United Kingdom	Within-subject repeated measures design (10 weekly sessions: 5 music, 5 control)	2 adult women (aged 34 and 50) with severe intellectual disabilities and behaviour difficulties	Individual music therapy (25–30 min) involving singing and sharing instruments, compared to cooperative ball play (15–20 min)	Video-coded peer interactions, classified by type and prompting	Both interventions increased positive interaction, with music therapy particularly effective at promoting spontaneous prosocial behaviour	To assess whether music therapy promotes social interaction among adults with severe disabilities	60%
Liang et al. [41]	China	Single-case qualitative case study	One 16-year-old boy with Down syndrome and severe intellectual disability in residential child welfare care	26 individual sandplay therapy sessions of 50 min over one year using Jungian principles	Observations, caregiver interviews, and session documentation	Noted improvements in emotion regulation, behavioural control, self-care skills, and interpersonal abilities	To explore therapeutic benefits of sandplay in a child with Down syndrome within a care system	100%
Musick [42]	United States	Pre-post within-subject design (non-randomized)	8 preschool children with multiple disabilities; 1 child with severe ID, Lowe syndrome, and partial blindness highlighted	Art therapy twice weekly (15 min sessions) over one semester, tailored to each child's sensory strengths	Creative Development Level assessed using Lowenfeld & Brittain's developmental art stages	The case child progressed from uncontrolled to controlled scribbling, equating to a developmental leap from age 2 to 3.5	To evaluate cognitive and expressive growth through sensory-based art therapy in multiply disabled children	60%

Table 3. *Cont.*

Authors and Year	Country	Study Design	Population	Intervention	Outcome Measures	Key Findings	Study Objective	Quality MMAT
Pavlicevic et al. [43]	United Kingdom	Exploratory qualitative study using focus groups and reflective practitioner interviews	4 focus groups including therapists, professionals, and family members of young adults with severe intellectual disabilities	Nordoff Robbins music therapy involving structured and improvisational sessions, with video/audio feedback	Thematic analysis of video-stimulated discussion transcripts	Therapy was perceived to foster emotional stability, self-confidence, relational growth, and stronger family/community bonds	To explore long-term psychosocial impacts of music therapy from multiple stakeholder perspectives	100%
Pounsett et al. [44]	United Kingdom	Qualitative single-case study using video observation	One 28-year-old man with severe ID, autistic traits, epilepsy, and trauma history	Three years of weekly art therapy using minimal materials to support safe expression and communication	Adapted POSER 2001 tool to assess emotional/relational change via video data	Marked emotional integration, improved trust and trauma resolution, and increasing engagement observed	To document and assess changes in affective and relational states during long-term art therapy	80%
Shaughnessy & Hirschhorn [45]	United States	Multimodal qualitative case study	One adult male client with severe ID, epilepsy, autism traits, and trauma history	Individual and group art therapy incorporated into BASIC ID multimodal treatment	Qualitative measures: emotional expression, behaviour, peer interaction, verbal engagement, and mood	Art therapy helped the client access and express feelings, reduce defences, and improve communication and peer relations	To evaluate art therapy as an adjunct to multimodal treatment for complex trauma and severe ID	60%
Thomas et al. [46]	South Africa	Quasi-experimental pre-post design over 11.5 weeks	9 boys (aged 6 years 9 months to 15 years 9 months) with profound to severe ID (mean intelligence quotient (IQ) ≈ 26)	Bi-weekly music therapy sessions (individual: 7–10 min; group: 30 min), tailored to cognitive level	Vineland Social Maturity Scale, fine motor test (apple box), and observational reports	Children improved in social maturity, fine motor coordination, and classroom cooperation	To examine how music therapy can improve social, motor, and behavioural functioning	80%

Based on the thematic analysis, five overarching domains emerged across the included studies: (1) cognitive domain, (2) psychological and emotional domain, (3) social and interactional domain, (4) communicative domain, and (5) creative domain. These domains represent the primary areas in which creative arts therapies were found to have an impact on people with severe intellectual disabilities and challenging behaviour. The following sections describe the findings within each domain in greater detail.

3.1. Cognitive Domain

A key theme emerging from six of the included studies was the influence of music and art therapies on various aspects of the cognitive domain, particularly in the domains of attention, concentration, and temporal orientation [34,35,41,43–45]. For instance, Dada et al. [35] reported significant improvements in participants' capacity to sustain attention, especially during music therapy sessions. Participants demonstrated the ability to concentrate on musical tasks for extended periods, indicating enhanced attention spans and cognitive engagement. This finding suggests that structured therapeutic interventions can foster fundamental cognitive processes among people with severe intellectual disabilities. In addition, Adebayo and Adeife [34] reported significant improvements in attention scores following a 10-week art therapy program (three 1 h sessions per week) involving painting, sketching, free drawing, object colouring, and papier mâché. The effects were not moderated by gender or severity level.

Thomas et al. [46] highlighted that individual music therapy sessions were particularly effective in enhancing attentional focus compared to group-based formats. While both formats elicited improvements, one-on-one sessions were associated with a notably longer duration of sustained attention. This points to the potential added value of individualized therapeutic approaches in promoting cognitive engagement.

In addition, Shaughnessy and Hirschhorn [45] described how one participant's verbalizations during art therapy transitioned from anxiety-laden reflections on the past to more present-oriented expressions. This change suggests improved cognitive orientation in terms of time, potentially reflecting a greater capacity to focus on the here and now. Similarly, Thomas et al. [46] observed a reduction in distractibility during music therapy sessions, with participants demonstrating increased ability to maintain focus on the therapeutic task at hand. Finally, Liang et al. [41] supports this domain by highlighting improved organizational skills and fine motor coordination, such as the ability to classify and arrange miniature objects during sandplay therapy. These gains reflected broader improvements in cognitive control and daily functional skills.

3.2. Psychological and Emotional Domain

Beyond cognitive outcomes, several studies underscored the positive psychological and emotional effects of therapy [37,41,43–45]. Multiple studies reported improvements in participants' emotional regulation, mood stability, and general psychological well-being. For example, Pounsett et al. [44] found that art therapy facilitated the emergence of emotional coherence in a participant with both severe intellectual disabilities and autism. Over time, the individual became more emotionally expressive, indicating a strengthening of internal emotional processes. Importantly, the therapy also had a ripple effect on the participant's support system: caregivers reported renewed optimism and increased emotional connection with the participant, highlighting the systemic impact of therapeutic work.

Similarly, Shaughnessy and Hirschhorn [45] documented how participants in art therapy sessions exhibited reductions in regressive or infantile behaviours, such as clinging and crying. These behavioural changes were interpreted as signs of increased emotional stability and an enhanced capacity to cope with environmental demands. The therapeutic environment appeared to support the domain of a more regulated and balanced emotional state, facilitating better adaptation to residential or living arrangements.

In contrast, the psychological benefits of music therapy were less consistently reported. Ford [37], for example, found no clear evidence of improvements in emotional regulation or reduction in self-harming behaviours, such as head-hitting and teeth-grinding. In some cases, these behaviours remained unchanged or even increased. The authors noted that substantial differences between participant groups limited the strength of their conclusions. Moreover, the study's design did not explicitly focus on measuring emotional resilience or psychological coping, which may explain the lack of definitive outcomes in this domain.

Nevertheless, more positive evidence was provided by Pavlicevic et al. [43] who conducted focus groups with parents of children with severe intellectual disabilities to assess the perceived impact of music therapy. One parent observed that their child responded positively to the playfulness and spontaneity of the sessions, displaying visible joy and a sense of achievement. These qualitative accounts suggest that music therapy may support psychological well-being by cultivating feelings of success, enjoyment, and emotional expression, especially for individuals who struggle with conventional modes of communication. Liang et al. [41] reinforces this domain, demonstrating that sandplay therapy supported emotional self-regulation, reduced emotional fluctuations and aggressive behaviour, and promoted internal psychological balance. The participant experienced therapeutic containment and symbolic integration, which contributed to improved emotional functioning in daily life.

3.3. Social and Interactional Domain

Another prominent theme across the included studies was the effect of therapeutic interventions on social behaviour and interactional skills [36,38–41,43–46]. Several studies provided evidence of increased social responsiveness, engagement with others, and improvements in interpersonal functioning following music or art therapy sessions.

DeBedout and Worden [36], for instance, reported that children with severe intellectual disabilities exhibited heightened engagement and more responsive behaviours during music therapy, particularly in interactions with the therapist. These observations were echoed by Hooper [39], whose findings showed that music therapy significantly improved cooperative and communicative behaviours compared to participants' baseline functioning. Music, with its rhythmic structure and shared performance elements, appeared to create an accessible and motivating context for social interaction.

Art therapy also demonstrated potential for enhancing social functioning. Shaughnessy and Hirschhorn [45] observed that after participating in group-based art therapy sessions, individuals engaged in more socially appropriate behaviours, such as initiating contact with others in respectful and contextually appropriate ways. Similarly, Thomas et al. [46] reported that music therapy contributed to a reduction in maladaptive behaviours—such as distractibility and antisocial tendencies—while fostering positive engagement, including cooperation, joint activity, and interpersonal communication. Moreover, Liang et al. [41] showed that reduced aggression and more effective peer interactions followed sandplay therapy. These findings suggest that both music and art therapies can play a valuable role in developing and strengthening social competencies among individuals with severe intellectual disabilities, particularly through structured, relationally rich environments.

3.4. Communicative Domain

Improvements in communicative ability also emerged as a significant outcome in several studies [43–45]. For example, Shaughnessy and Hirschhorn [45] documented enhanced verbal communication in a participant following art therapy sessions. The participant began naming colours, expressing emotions more clearly through drawings, and engaging more consistently in verbal interactions. These findings indicate that creative expression can serve as a bridge to verbal communication for individuals with severe intellectual disabilities.

Pavlicevic et al. [43] also highlighted communication-related outcomes from the perspective of parents. They noted that their children used music therapy as a medium for expressing emotional states and personal preferences. For many of these children, verbal communication was limited, so the musical context provided an alternative and meaningful channel for interaction and self-expression. This suggests that music and art therapies not only support the domain of traditional communicative skills but also create opportunities for non-verbal forms of expression that are particularly suited to individuals with significant communicative challenges.

3.5. Creative Domain

Finally, two studies illustrated the potential of art therapy and play therapy to foster the creative domain and self-expression among participants. That is, Musick [42] presented a case in which an individual's drawing ability improved markedly over the course of an art therapy program. The participant's artwork progressed from basic marks to more confident and structured representations, including clear geometric forms such as circles. This progression not only signified enhanced creative ability but also suggested improvements in fine motor skills and perceptual organization. The capacity to create recognizable and expressive images reflected both cognitive and artistic growth. Moreover, Liang et al. [41] emphasized the symbolic, sensory, and expressive engagement of their participant with materials such as sand and miniature figures. The sandplay experience seemed to foster creativity through embodied and symbolic self-expression, which was central to the therapeutic gains observed.

4. Discussion

This scoping review found evidence that creative arts therapies, psychomotor therapy, and play therapy can positively impact attention, social engagement, emotional regulation, communication, and creative expression among people with severe intellectual disabilities and challenging behaviour. Six studies, for example, reported increased attentional focus and sustained engagement during structured creative arts therapy sessions [34,35,41,44–46].

Emotional and psychological benefits were particularly evident in arts therapy interventions, where participants displayed more regulated and present-focused emotional expression. Caregivers often reported renewed optimism and deeper emotional connections with participants, indicating that therapeutic benefits may extend beyond the individual to influence broader relational systems. In contrast, evidence from music therapy was more heterogeneous: Ford [37] found no measurable reductions in self-injurious behaviours, whereas Pavlicevic et al. [43] described participants displaying visible joy and deep engagement during music sessions. These contrasting findings suggest that standardised behavioural outcome measures may fail to fully capture subjective emotional shifts. Consequently, mixed-methods designs appear well-suited to evaluating the subtle and complex outcomes of such interventions.

Both music and art therapy sessions promoted greater social responsiveness. Across multiple studies, participants exhibited more turn-taking, eye contact, and cooperative behaviours [36,39]. Music's rhythmic, dyadic, and collaborative structure may offer a natural scaffold for social interaction, while group-based creative arts sessions appeared to encourage respectful initiation and sustained engagement in social contact. These findings are in line with Astramovich et al. [47], who demonstrated that shared, play-based activities promote group cohesion and enhance social skills. However, most studies assessed these gains during therapy sessions, leaving the durability and generalisability of such improvements beyond the therapeutic context unclear.

Improvements in communication also emerged as a recurring outcome. Some participants, previously minimally verbal, began to name colours, express preferences, or describe emotional states during therapy [45,48]. Music and art offered alternative communicative modalities—particularly important where verbal expression was limited. These findings reinforce the view that creative arts therapies can function as non-verbal bridges between internal experience and external expression, provided that facilitators are attuned to symbolic communication and non-verbal cues. This perspective is supported by earlier research that emphasises the significance of non-verbal attunement in fostering therapeutic alliance and facilitating emotional expression in creative arts therapies [16,49]. In addition, these therapies often contributed to the creative domain and fine motor skill enhancement. Case reports described participants evolving from making rudimentary marks to producing structured images, reflecting improvements in perceptual organisation and manual control [42]. Similarly, synchronisation and mirroring exercises in music therapy were reported to foster relational attunement and temporal coordination [50,51]. These creative and sensorimotor increases may enhance self-efficacy and motivation by offering a tangible sense of progress and mastery—though this mechanism warrants further investigation and theoretical elaboration.

Across these domains, several transdiagnostic working elements appear to underpin the observed therapeutic outcomes. These elements align with the Research Domain Criteria (RDoC) framework, which highlights dimensional constructs that span multiple psychological and neurobiological systems [22]. For example, structured and predictable therapeutic routines—such as the consistent use of familiar songs or formats—support arousal regulation and attentional engagement, aligning with the Arousal/Regulatory Systems domain [52]. Empathic attunement by therapists, often through musical, gestural, or embodied mirroring, contributes to the Social Processes domain under the construct of Affiliation and Attachment. Such mirroring facilitates co-regulation and emotional safety, foundational for therapeutic engagement [53]. Additionally, shared creative tasks likely activate the Positive Valence Systems by eliciting affective resonance, group cohesion, and positive anticipation. These emotionally salient experiences may bypass cognitive or verbal defences and allow clients to safely explore, express, and reorganise internal states.

These mechanisms also provide a theoretical rationale for the use of non-verbal and playful interventions in people with severe intellectual disabilities, who may have limited cognitive or verbal capacities. The emphasis on rhythm, repetition, and affective attunement reflects principles observed in early caregiver–infant interactions, where synchronization and entrainment support emotion regulation, social bonding, and learning [20,21]. By linking these mechanisms to both neurobiological and psychosocial domains, CATs, psychomotor therapy, and play therapy can be understood not only as therapeutic interventions but also as vehicles for promoting adaptive functioning, engagement, and well-being in a population with limited access to conventional verbal therapies. Furthermore, these transdiagnostic mechanisms suggest that therapeutic effects are not limited to specific diagnoses or age groups but span multiple domains of functioning. Structured routines, empathic attunement, and shared creative experiences collectively facilitate co-regulation, emotional expression, social participation, and positive affective experiences, which are foundational for long-term engagement and quality of life. Recognizing these mechanisms early in the manuscript allows readers to contextualize the subsequent findings and appreciate how different types of creative and embodied therapies can converge on shared neuropsychological and psychosocial processes.

Importantly, many creative arts therapies and related interventions are widely applied in practice but remain under-reported in research. This under-reporting can challenge practitioners' ability to implement evidence-based practice and may undermine the value of their experiential knowledge. The current review highlights this research–practice gap and underscores the need for future empirical studies that both document and evaluate these commonly used approaches. Despite this gap, several concrete therapeutic elements with clinical utility emerge from the review. Providing predictability through consistent structure can reduce anxiety and increase participants' readiness to engage. Therapist attunement and responsiveness foster emotional safety and support a sense of autonomy. Group formats promote social participation and cooperation, while individual formats allow for focused emotional processing [36,46]. Although no studies on psychomotor therapy met the inclusion criteria, psychomotor components—such as rhythmic movement and breathing exercises—have been proposed to support physiological self-regulation [54], representing a promising direction for future research. Active caregiver involvement enhances generalisation to daily life, strengthens support networks, and increases the likelihood of sustained outcomes [44].

Despite these promising findings, important methodological limitations must be acknowledged. Many studies included small sample sizes and lacked rigorous control conditions. Intervention descriptions and outcome measures were often inadequately detailed, impeding replication and limiting transparency. The current evidence base is also disproportionately focused on music and art therapies, with comparatively fewer studies on psychomotor therapy or play therapy. Additionally, most of the research was conducted in Western contexts, raising questions about the cultural transferability of findings. Given the vulnerability of the population and the need for personalised approaches, multiple single-case experimental designs (SCEDs) represent a powerful, ethical, and flexible research methodology [55]. SCEDs permit nuanced analysis of individual trajectories, accommodate tailored intervention strategies, and allow for generalisation across participants through replication. Longitudinal designs could further clarify the persistence and sustainability of therapeutic gains. Future research should also explore the efficacy and feasibility of these therapies in non-Western settings and assess outcomes when delivered by non-specialist facilitators to enhance accessibility and scalability. More attention to understudied modalities—including psychomotor therapy and play therapy—and the use of technology may also expand intervention options [48,50]. Finally, delineating and labelling

the target population of people with severe intellectual disabilities may be challenging, as definitions and reporting practices varied across studies. Although the screening process was conducted carefully, it is possible that some relevant studies were inadvertently missed due to this variability.

In addition to evaluating intervention effects, it is essential to investigate the working mechanisms and specific working elements of creative arts therapies, psychomotor therapy, and play therapy for people with severe intellectual disabilities and challenging behaviour. Working mechanisms refer to intra-individual processes—such as emotional, regulatory, or cognitive shifts—that explain how and why an intervention produces its effects [56,57]. These mechanisms are activated through specific working elements, defined as the active components, techniques, or therapist behaviours systematically applied to achieve therapeutic goals [16]. Focusing research on mechanisms and elements such as structure, attunement, and social engagement can provide evidence-based insight into which components are most impactful for this complex population. Such knowledge may increase both the efficiency and goal-orientation of interventions, while enhancing their acceptability and fidelity in clinical practice [58].

5. Conclusions

In sum, this scoping review indicates that creative arts therapies and play therapy can offer multifaceted and meaningful benefits for people with severe intellectual disabilities and challenging behaviour. These therapies engage emotional, cognitive, social, and expressive capacities through structured, empathic, and participatory methods. While further validation is needed—particularly in relation to long-term effects, cultural generalisability, and under-researched modalities—the current evidence underscores their value as person-centred, relational interventions. To strengthen this emerging evidence base, future studies should prioritise the investigation of working mechanisms and working elements (e.g., structure, attunement, social engagement) and adopt rigorous methodologies such as multiple SCEDs. A deeper understanding of how these interventions work and which elements are essential will enable more targeted, effective, and ethically sound application of creative arts therapies, psychomotor therapy, and play therapy in support of this highly vulnerable population.

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Disability Language/Terminology Positionality Statement: As this review focuses on an international body of literature, we were guided both by the terminology used in the primary studies and by internationally accepted frameworks, such as the UN Convention on the Rights of Persons with Disabilities. In line with these sources, we consistently use person-first language, referring to "people with a severe intellectual disability" throughout the manuscript.

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