Supplemental Appendix

Table A.1. Evidence Table for the Scoping Review of Art Interventions for Children With Autism Spectrum Disorder

Author/Year	Level of Evidence/Study Design/Risk of Bias	Participants/Inclusion Criteria/Intervention Setting	Intervention and Control Groups	Outcome Measures	Results
Bharathi, Jayaramayya, et al. (2019)	Level 2b Quasi-experimental design with control group *Risk of Bias* Moderate	*N* = 54 (ages 6–12 yr) *Inclusion Criteria* Mild to severe ASD according to the CARS *Exclusion Criteria* Deafness, visual challenges, motor and speech difficulties, no taking medication *Intervention Setting* Not stated	*Intervention Group* (*n* = 26) 3 35-min sessions/wk. 4 songs, each 6 min long, were played (religious theme, soft piano, local folk song, and Western pop). Participants sang, danced, and played musical instruments while listening to the music, then were observed for 10 min after. *Control Group* (*n* = 26) 3 35-min sessions/wk. Participants listened to the same songs as the intervention group but received no interaction; observed for 10 min after.	*ASD Symptoms* CARS scores were recorded before and after the experiment. 15 criteria were used: relating to people, imitation, emotional response, body, object use, adaptation to change, visual response, listening response, taste–smell–touch response and use, fear and nervousness, verbal communication, nonverbal communication, activity level, level and consistency of intellectual response, and general impressions *Social Skills* TSSA: understanding and perspective taking, initiating interactions, responding to initiations, and maintaining interactions *Statistics* • ANCOVA • Dependent-samples *t* test	*Significant Results* A significant improvement in overall social skills was found at posttest: ability to understand perspective taking and responding to others and ability to maintain social interactions in active group compared with passive group. *Nonsignificant Results* No significant between-groups difference was found, and the positive effect did not last at posttest in follow-up TSSA scores and ability to initiate social interactions.
Bieleninik et al. (2017)	Level 1b RCT	*N* = 364 (ages 4–6 yr) *Inclusion Criteria*	*Intervention 1: High-Intensity Music Therapy* (*n* = 90)	*Social Affect* ADOS	*Significant Results* Music therapy (Interventions 1 and 2) was associated with

Author/Year	Level of Evidence/Study Design/Risk of Bias	Participants/Inclusion Criteria/Intervention Setting	Intervention and Control Groups	Outcome Measures	Results
	Risk of Bias Low	Meets criteria for ASD according to *ICD–10* *Exclusion Criteria* Serious sensory disorder (deafness or blindness), received music therapy in past 12 mo *Intervention Setting* Unspecified outpatient settings	3 30-min sessions/wk, with enhanced standard care, over a 5-mo period. Sessions consisted of joint musical activities (singing or playing an instrument play) individually with each child, based on the child's focus of attention and using improvisation techniques such as synchronizing, mirroring, or grounding *Intervention 2: Low-Intensity Music Therapy* (*n* = 92) 1 30-min session/wk; otherwise, same as Intervention 1 *Intervention 3: Standard Care* (*n* = 182) Enhanced standard care, consisting of the routine care available at the site, plus 3 60-min sessions of parent counseling	*Statistics* Linear mixed-effects models with maximum likelihood estimation	greater improvements than standard care in social motivation over 5 mo and ASD mannerisms over 2 and 12 mo. High-intensity music therapy, compared with standard care, was associated with greater improvements in autistic mannerisms over 5 mo. Low-intensity music therapy, compared with standard care, was associated with greater improvements in social awareness at 2 mo. *Nonsignificant Results* ADOS social affect scores did not differ between low- or high-intensity music therapy and standard care.
Chincholkar et al. (2019)	Level 2b Prospective cohort study *Risk of Bias* Low	*N* = 9 (ages 5–12 yr) *Inclusion Criteria* Diagnosis of ASD, experience with some formal schooling, have OT and special education as part of curriculum, have been	*Intervention Group* (*n* = 9) 2 30-min 1:1 sessions/wk, for a total of 16 sessions (2 mo); participated in art activities such as free drawing and playing with clay	*ASD Symptoms* CARS *Personal and Social Skills* VSMS *Observations*	*Significant Results* Significant improvement was found in CARS scores for relating to people, imitation, body use, verbal communication, visual response, and emotional response, as well as in VSMS

Author/Year	Level of Evidence/Study Design/Risk of Bias	Participants/Inclusion Criteria/Intervention Setting	Intervention and Control Groups	Outcome Measures	Results
		in the school setting for ≥1 yr and ≤3 yr *Exclusion Criteria* None *Intervention Setting* Not stated		Parents, teachers, and neutral observers observed clay work and free scribble drawing *Statistics* Dependent-samples *t* test	socialization and communication scores *Nonsignificant Results* Nonsignificant results were obtained for CARS scores; object use; adaptation to change; listening to people; taste, smell, and touch response and use; fear or nervousness; nonverbal communication; activity level; level and consistency of intellectual response and general impression; general self-help; eating; dressing; locomotion; and self-direction
Corbett et al. (2017)	Level 1b RCT *Risk of Bias* Moderate	*N* = 30 (ages 8–14 yr) *Inclusion Criteria* *DSM–5* diagnosis of ASD, higher functioning, IQ >70 *Exclusion Criteria* *Intervention Setting* Summer camp	*Intervention Group* (*n* = 17) 1 4-hr session/wk for 10 wk; took part in 2 performances at the end of the intervention; initial sessions had theater games, role playing, exercises, and video modeling; later sessions focused on roles for the play *Control Group)* (*n* = 13) Wait list; no intervention	*Anxiety* • STAI–C • Cortisol levels *Group Play* • PIP • Observation *Statistics* • ANCOVA • Correlation analyses	*Significant Results* STAI–C Trait anxiety was significantly lower and had a negative correlation with cortisol during play in the intervention group compared with the control group. Significant differences in cortisol were noted for the intervention group at baseline and at the end of the first and middle days of intervention; there was also a negative correlation between STAI–C trait and group play and between play cortisol and group play. *Nonsignificant Results*

Author/Year	Level of Evidence/Study Design/Risk of Bias	Participants/Inclusion Criteria/Intervention Setting	Intervention and Control Groups	Outcome Measures	Results
					No significant between-groups difference was found in STAI–C state anxiety and cortisol.
Corbett et al. (2019)	Level 1b RCT *Risk of Bias* Moderate	*N* = 77 (ages 8–16 yr) *Inclusion Criteria* *DSM–5* diagnosis of ASD, IQ ≥ 70, no displays of aggression (verbal or physical) by parent report or clinical observation *Exclusion Criteria* *Intervention Setting* School auditorium	*Intervention Group* (*n* = 44) 1 4-hr group session/wk for 10 wk. Sessions used the SENSE theater approach, including theater games, role-play exercises, improvision, character development, and performing in a play *Control Group* Wait list (*n* = 33); no intervention until study was completed	*Social Cognition* ERPs *Social Perception* • TOM from the NEPSY • TOM–Verbal to examine the child's ability to understand that people have their own feelings and thoughts • TOM–Contextual to measure a child's ability to relate an emotion to a social scenario *Incidental Face Memory* ERP paradigm *ERP Variable Derivation* Electroencephalogram *Social Behavior* PIP *Statistics* • Independent-samples *t* test • ANCOVA	*Significant Results* After the intervention, the intervention group had higher social cognition (TOM–Verbal and ERP) scores and engaged in more solicited play than the control group. *Nonsignificant Results* No between-groups differences were found in TOM–Contextual scores and engagement in unsolicited play.
Corbett et al. (2016)	Level 2b RCT *Risk of Bias* Moderate	*N* = 30 (ages 8–14 yr) *Inclusion Criteria* *DSM–5* diagnosis of ASD, higher functioning, IQ >70 *Exclusion Criteria*	*Intervention Group* (*n* = 17) 1 4-hr session/wk for 10 wk. Sessions included watching video models and practicing at home; the videos were 15 min long and were used to	*Social Functioning* • SRS • ABAS *Social Interaction* PIP *Social Cognition*	*Significant Results* Group effects were seen in social ability, communication symptoms, group play with toys with peers around, immediate memory of faces, delayed memory of faces, and TOM. There was still a sig-

Author/Year	Level of Evidence/Study Design/Risk of Bias	Participants/Inclusion Criteria/Intervention Setting	Intervention and Control Groups	Outcome Measures	Results
		Intervention Setting Summer camp	target behaviors, role-plays, and songs. The beginning of the theater sessions included theater games, role playing, and exercises; by the third session, participants were given a 45-min play that used exercises, role play, improvision, and video modeling. In the rest of the sessions, children worked with their peers on their roles *Control Group* (*n* = 13) Wait list; no intervention	NEPSY *Social Brain* Incidental face memory *Statistics* • ANCOVA • Independent-samples *t* test	nificant difference between groups in communication after 2 mo. *Nonsignificant Results* No differences were found in ABAS scores after 2 mo, and equipment play and ERP for nonsocial stimuli in the post-treatment period between groups
Crawford et al. (2017)	Level 1b RCT *Risk of Bias* Low	*N* = 364 (ages 4–7 yr) *Inclusion Criteria* Diagnosis confirmed by scores on the ADOS and 2 of the 3 domains of the ADI–R *Exclusion Criteria* Received music therapy in past 12 mo, severe sensory disorders *Intervention Setting* Local schools or National Health Service facilities	*Intervention 1: High-Frequency Music Therapy* (*n* = 72) 3 30-min sessions/wk. Music was played or sung by the therapist, and the child was allowed to play a tuned or untuned percussion or wind instrument to target therapy session engagement and tolerance level to choose new or different musical instruments	All outcomes were measured at 5 and 12 mo. *Social Affect* Social Affect scale of the ADOS *Social Responsiveness* Parent report using the SRS *Parental Stress* PSI–SF *Parental Well-Being* Short version of the Warwick–Edinburgh Mental Well-Being Scale *Statistics*	*Significant Results* Parents of children in music therapy reported less stress at 12 mo. *Nonsignificant Results* A decrease in ADOS social affect score was noted for both groups, but was not significant. Parent-rated social responsiveness also decreased, but was not significant; no differences in parental mental well-being were found.

Author/Year	Level of Evidence/Study Design/Risk of Bias	Participants/Inclusion Criteria/Intervention Setting	Intervention and Control Groups	Outcome Measures	Results
			Intervention 2: Low-Frequency Music Therapy (*n* = 82) 1 30-min session/wk. Sessions were the same as in Intervention 1 *Control Group* (*n* = 136) All participants were offered enhanced standard care in the form of 3 sessions of advice and support	• Linear mixed-effects models with maximum likelihood estimation • *t* tests	
Gattino et al. (2011)	Level 2b RCT *Risk of Bias* Low	*Participants* *N* = 24 (ages 7–12 yr) Participants had ASD, Asperger's syndrome, or pervasive developmental disorder *Inclusion Criteria* No previous experience with music therapy, able to tolerate sounds or music, no profound hearing loss *Exclusion Criteria* *Intervention Setting* Hospital de Clinicas de Porto Alegre, Brazil	*Intervention 1: Relational Music Plus Clinical Routine* (*n* = 12) 1 initial 30-min music therapy session playing with musical instruments and listening to music when a song was played on a CD player, then 1 30-min session/wk of relational music therapy for 16 wk, plus a final 30-min music therapy session and weekly clinical routine activities in the hospital where they were recruited *Control Group* (*n* = 12) Participated only in weekly clinical routine activities at the hospital	*Communication* CARS, adapted for Brazil: verbal, nonverbal, and social communication *Statistics* Student's *t* test	*Significant Results* Children with ASD in the intervention group had a significant difference in nonverbal communication scores compared with the children with ASD in the control group, and maladaptive behaviors were reduced. *Nonsignificant Results* There was no significant difference on 3 measured outcomes between the 2 groups overall.

Author/Year	Level of Evidence/Study Design/Risk of Bias	Participants/Inclusion Criteria/Intervention Setting	Intervention and Control Groups	Outcome Measures	Results
			where they were recruited		
Ioannou et al. (2020)	Level 1b RCT *Risk of Bias* Moderate	*N* = 77 (ages 8–16 yr) *Inclusion Criteria* Diagnosis of ASD, WASI–II IQ >70, no history of aggression in the past 6 mo *Exclusion Criteria* *Intervention Setting* Summer camp	*Intervention Group* (*n* = 44) 10 4-hr sessions. The initial sessions had mock auditions, theater games, and imaginative play; later sessions involved character development, role play, rehearsal, and video modeling. The intervention was completed with 2 public performances *Control Group* (*n* = 33) Wait list; received no intervention until after the study was over	*Social Interaction* PIP *Anxiety* STAI–C *Statistics* • Independent-samples *t* test • ANCOVA	*Significant Results* The intervention group engaged in significantly more group play, less self-play, increased unsolicited group play, and less trait anxiety compared with the control group. *Nonsignificant Results* There was no change in unsolicited self-play and state anxiety.
Koo & Thomas (2019)	Level 2b RCT *Risk of Bias* Moderate	*N* = 18 (ages 4–12 yr) *Inclusion Criteria* Diagnosis of ASD, attending center for children with ASD in Bangalore *Exclusion Criteria* *Intervention Setting* School	*Intervention Group* (*n* = 9) 8 30-min sessions over 10 wk. Children chose art materials (drawing, painting, crafting, clay) and worked through art concepts *Control Group* (*n* = 9) Attended regular classes and received no art therapy	*ASD Symptoms* CARS *Statistics* • ANCOVA • Paired-samples *t* test • Wilcoxon signed-rank test	*Significant Results* The intervention group had significantly lower posttest CARS scores than the control group, indicating improvement in ASD symptoms. Pre- and posttest scores indicated that the intervention group had a significant improvement in level and consistency of intellectual response and relating to people. *Nonsignificant Results* None

Author/Year	Level of Evidence/Study Design/Risk of Bias	Participants/Inclusion Criteria/Intervention Setting	Intervention and Control Groups	Outcome Measures	Results
LaGasse (2014)	Level 2b RCT *Risk of Bias*: Moderate	*N* = 17 (ages 6–9 yr) *Inclusion Criteria* Formal documentation of ASD, English as primary language, no dual-disability diagnosis, no music therapy treatment over previous 2 yr *Exclusion Criteria* *Intervention Setting* Large treatment room in clinic	*Intervention 1: Music Therapy* (*n* = 10) 2 50-min sessions/wk for 5 wk. Sessions were held in small groups and tried to create musical experiences that were functionally similar to nonmusical experiences, with the addition of musical experiences and cues to facilitate the desired social skills. Sessions consisted of a welcome exercise, followed by sensory and social experiences, and ended with cooperative play and a farewell exercise. *Intervention 2: Social Skills* (*n* = 12) Sessions were held in the same manner as for the music therapy group, but music was not incorporated into the social skills exercises.	*Level of Function* CARS–2 *Social Skills* • SRS • Behavioral observation coding (eye gaze, joint attention, initiation of communication, response to communication, withdrawal behaviors) *ASD Symptoms* ATEC *Statistics* • ANCOVA • ANOVA	*Significant Results* A significant difference was found between the intervention group and the control in pre- and posttest scores for joint attention with peers and eye gaze, with the intervention group having higher means. A significant interaction between time and group for SRS scores was noted; the intervention group improved, but the control group did not. *Nonsignificant Results* No significant difference was found over time between the two groups in initiation of communication, response to communication, social withdrawal behaviors, ATEC scores, or health and physical behavior.
Poquérusse et al. (2018)	Level 2b RCT, cross-over design *Risk of Bias* Low	*N* = 15 (ages 4–5 yr) *Inclusion Criteria* *DSM–5* diagnosis of ASD, no other major medical condition or vis-	*Intervention Group* (*n* = 8) Music therapy; 50 min of group discussion and interaction related to the emotions felt when listening to specific	*Stress* sAA *Statistics* General linear model	*Significant Results* Significantly lower sAA levels were found for the music group versus the control group. *Nonsignificant Results* None

Author/Year	Level of Evidence/Study Design/Risk of Bias	Participants/Inclusion Criteria/Intervention Setting	Intervention and Control Groups	Outcome Measures	Results
		ual or hearing impairment *Exclusion Criteria* *Intervention Setting* Observation and Functional Diagnosis Laboratory, University of Trento, Italy	musical pieces and being allowed to improvise a performance using musical instruments. *Control Group* (*n* = 7) 50 min of regular daily activities in groups of 3		
Richard et al. (2015)	Level 2b RCT *Risk of Bias* Moderate	*N* = 19 (ages 8–14 yr) *Inclusion Criteria* Diagnosis of ASD, response to Diagnostic Analysis of Nonverbal Accuracy; did not have repetitive answers *Exclusion Criteria* *Intervention Setting* School	*Intervention Group* (*n* = 10) 1 30-min session in which participants were asked to build 4 faces (happy, sad, angry, fearful) using facial features such as mouth, nose, eyes, and brows; they were asked to choose a mouth for each emotion; if their choice was wrong, they were alerted to the correct answer. *Control Group* (*n* = 9) Children were given an art activity: playing with Magneatos and building 3D designs	*Recognition of Facial Expression* DANVA 2–CF, administered pre- and postintervention *Statistics* Student's *t* test	*Significant Results* None *Nonsignificant Results* No significant between-groups difference was found in DANVA 2–CF scores at pretest and posttest for either the control or the intervention group; there was also no significant difference in change in scores between pretest and posttest for either the control or the intervention group.
Sharda et al. (2018)	Level 1b RCT *Risk of Bias*	*N* = 51 (ages 6–12 yr) *Inclusion Criteria*: Met *DSM–IV* criteria for ASD, no music therapy	*Intervention: Music Therapy* (*n* = 26) 1 45-min session/wk for 8–12 wk. Sessions made use of musical instru-	*Pragmatic Communication* CCC–2 *Symptom Severity* SRS–II	*Significant Results* The music group showed improvements in communication on the CCC–2 from baseline, with more improvements seen

Author/Year	Level of Evidence/Study Design/Risk of Bias	Participants/Inclusion Criteria/Intervention Setting	Intervention and Control Groups	Outcome Measures	Results
	Low	within previous 6 mo, no private music lessons for cumulative period of 1 yr before study, no group music therapy in school, >35 wk of gestation, no hearing disorder or medical history of neurological disease *Exclusion Criteria* *Intervention Setting* Clinic	ments, songs, and rhythmic cues while targeting communication, turn-taking, sensorimotor integration, social appropriateness, and musical interaction. *Control Group* (*n* = 25) 1 45-min session/wk of nonmusic activities for 8–12 wk. Sessions used a play-based intervention to control for nonspecific factors, such as positive treatment expectancies, intervention support, therapist attention, and emotional engagement.	*Receptive Vocabulary* PPVT–4 *Family Quality of Life* FQoL *Maladaptive Behaviors* VABS–MB *Statistics* Linear mixed-effects models with maximum likelihood estimation	in the music group compared with the nonmusic group. Differences were observed in speech, semantics, inappropriate initiations, and 2 autism-related FqoL subtests—Social Relations and Interests, and a significant difference was seen in pre- and posttest scores for parent-reported FQoL, with more improvement in the music group. Both groups showed reductions in maladaptive behaviors on the VABS–MB postintervention. *Nonsignificant Results* No between-groups differences were found in SRS–II scores and PPVT–4 standard scores.
Simpson et al. (2013)	Level 1b RCT, crossover design *Risk of Bias* Moderate	*N* = 22 (ages 3.5–9 yr) *Inclusion Criteria*: Primary diagnosis of ASD, score ≥15 on the Social Communication Questionnaire *Exclusion Criteria* *Intervention Setting* Clinic	15 teaching sessions in which pictures of randomly named garden creatures were presented; the screen displayed a picture of the correct creature and 2 other creatures. If the child selected the correct picture, the next slide showed a picture of the correct animal, and the name of the creature was stated	*Engagement* Child sat in a chair at a table, looked at a screen, and responded to the instruction or prompts; no challenging behaviors noted *Challenging Behaviors* Leaving the table, destroying test materials, aggression toward self or researcher, disruptive behavior (crying, screaming, noncompliant)	*Significant Results* Children in the sung condition were significantly more engaged than those in the spoken condition. There was a strong positive correlation between engagement and number of correct answers. *Nonsignificant Results*

Author/Year	Level of Evidence/Study Design/Risk of Bias	Participants/Inclusion Criteria/Intervention Setting	Intervention and Control Groups	Outcome Measures	Results
			again. 4 creatures were named, and each was randomly named 3 times. If the child did not click the correct picture, then the computer marked it as incorrect. *Intervention Group* (*n* = 11) The instructions were sung. *Control Group* (*n* = 11) The instructions were spoken, not sung.	*Statistics* • ANOVA • Shapiro–Wilk test • Wilcoxon signed-rank test • Mann–Whitney *U* • Pearson *r*	No significant difference was noted in challenging behaviors between groups, as was no significant relationship between challenging behaviors and number of correct answers.

Note. ABAS = Adaptive Behavior Assessment System; ADI–R = Autism Diagnostic Interview–Revised; ADOS = Autism Diagnostic Observation Schedule; ASD = autism spectrum disorder; ANCOVA = analysis of covariance; ANOVA = analysis of variance; ATEC = Autism Treatment Evaluation Checklist; CARS = Childhood Autism Rating Scale; CARS–2 = Childhood Autism Rating Scale, Second Edition; CCC–2 = Children's Communication Checklist–Second Edition; DANVA2–CF = Diagnostic Analysis of Nonverbal Accuracy 2, Child Facial Expressions subscale; *DSM–5 = Diagnostic and Statistical Manual of Mental Disorders* (5th ed.); ERP = event-related potential; FQoL = Family Quality of Life Scale; *ICD–10 = International Classification of Diseases,* 10th edition; NEPSY = Developmental NEuroPSYchological Assessment; OT = occupational therapy; PIP = Peer Interaction Paradigm; PPVT–4 = Peabody Picture Vocabulary Test, 4th Edition; PSI–SF = Parental Stress Index–Short Form; RCT = randomized controlled trial; sAA = salivary α-amylase; SENSE = Social Emotional NeuroScience Endocrinology; SRS = Social Responsiveness Scale; SRS–II = Social Responsiveness Scale, Second Edition; STAI–C = State–Trait Anxiety Inventory–Children; TOM = Theory of Mind; TSSA = TRIAD Special Skills Assessment; VABS–MB = Vineland Adaptive Behavior Scales, Maladaptive Behaviors domain; VSMS = Vineland Social Maturity Scale; WASI–II = Wechsler Abbreviated Scale of Intelligence, Second Edition.

Table A.2. Duration and Intensity of the Art Interventions

Author/Year	Intervention	Treatment Session Duration	Session Intensity	No. of Sessions	Total Intervention Duration, Min
Bharathi, Jayaramayya, et al. (2019)	Music (singing, dancing, and musical play)	35 min	3 sessions/wk	36	105

Author/Year	Intervention	Treatment Session Duration	Session Intensity	No. of Sessions	Total Intervention Duration, Min
Bieleninik et al. (2017)	Music (singing or musical play)	30 min	High-intensity group: 3 sessions/wk Low-intensity group: 1 session/wk	20–60	600–1,800
Chincholkar et al. (2019)	Art (clay and free drawing)	30 min	2 sessions/wk	16	480
Corbett et al. (2019)	Theater (theater games, role plays, rehearsal)	4 hr	1 session/wk	10	2,400
Corbett et al. (2017)	Theater (theater games, role plays, rehearsal)	4 hr	1 session/wk	10	2,400
Corbett et al. (2016)	Theater (theater games, role play, rehearsal)	4 hr	1 session/wk	10	2,400
Crawford et al. (2017)	Music (singing or musical play)	30 min	High-intensity group: 3 sessions/wk Low-intensity group: 1 session/wk	20– 60	600–1,800
Gattino et al. (2011)	Music (listening to music and playing with musical instruments)	30 min	1 session/wk	16	480
Ioannou et al. (2020)	Theater (theater games, role play, rehearsal)	4 hr	1 session/wk	10	2,400
Koo & Thomas (2019)	Art (drawing, painting, using clay, crafting)	30 min	1 session/wk	8	240
LaGasse (2014)	Music (creating music in	50 min	2 sessions/wk	10	500

From Bernier, A., Ratcliff, K., Hilton, C., Fingerhut, P., & Li, C. Y. (2022). Art interventions for children with autism spectrum disorder: A scoping review. *American Journal of Occupational Therapy*, *76,* 7605205030 (https://doi.org/10.5014/ajot.2022.049320).

Author/Year	Intervention	Treatment Session Duration	Session Intensity	No. of Sessions	Total Intervention Duration, Min
	group sessions)				
Poquérusse et al. (2018)	Music (discussions about emotions on listening to different musical pieces)	50 min	1 session	1	50
Richard et al. (2015)	Art (constructing different emotions on a face)	60 min	1 session	1	60
Sharda et al. (2018)	Music (playing musical instruments, singing, and using rhythmic cues)	45 min	1 session/wk	8–12	360–540

Note. Simpson et al. (2013) is not included because the study's objective was not the length of the study but the modality of the interventions.

Table A.3. Risk-of-Bias Table for Two-Group RCTs and Nonrandomized Controlled Trials and for One-Group Studies With No Control Group

Author/Year	Selection Bias			Performance Bias		Detection Bias		Attrition Bias: Incomplete Outcome Data	Reporting Bias: Selective Reporting	Overall Risk-of-Bias Assessment
	Random Sequence Generation	Allocation Concealment	Baseline Difference Between Intervention Groups	Blinding of Participants During Trial	Blinding of Study Personnel During Trial	Blinding of Outcome Assessment: Self - Reported Outcomes	Blinding of Outcome Assessment: Objective Outcomes			
Bharathi, Jayaramayya, et al. (2019)	–	+	+	–	–	–	–	+	+	M
Bieleninik et al. (2017)	+	+	+	+	–	+	+	+	+	L
Corbett et al. (2017)	+	+	+	–	–	–	–	+	+	M
Corbett et al. (2019)	+	+	+	–	–	–	–	+	+	M
Corbett et al. (2016)	+	+	+	–	–	–	–	+	+	M
Crawford et al. (2017)	+	+	+	–	+	–	+	+	+	L
Gattino et al. (2011)	+	+	+	–	+	+	+	+	+	L
Ioannou et al. (2020)	+	+	+	–	–	–	–	+	+	M
Koo & Tomas (2019)	+	+	+	–	–	–	–	+	+	M
LaGasse (2014)	+	+	+	–	–	–	–	+	+	M
Poquérusse et al. (2018)	+	+	+	–	–	+	–	+	+	L
Richard et al. (2015)	+	+	+	–	–	–	–	+	+	M
Sharda et al. (2018)	+	+	+	–	+	–	+	+	+	L
Simpson et al. (2013)	+	+	+	–	–	–	–	+	+	M

Note. + = low risk of bias; – = high risk of bias. Scoring for the overall risk-of-bias assessment is as follows: 0–3 minuses = low risk of bias (L); 4–6 minuses, moderate risk of bias (M); 7–9 minuses, high risk of bias (H). RCT = randomized controlled trial. Table form adapted from "A Revised Tool for Assessing Risk of Bias in Randomized Trials," by J. P. T. Higgins, J. A. C. Sterne, J. Savović, M. J. Page, A. Hróbjartsson, A., I. Boutron, . . . S. Eldridge, 2016, *Cochrane Database of Systematic Reviews*, *2016*(10, Suppl.), 29–31 (https://doi.org//10.1002/14651858.CD201601).

Table A.4. Risk of Bias for Before–After (Pre–Post) Study With No Control Group

Author/Year	Study Questions or Objectives Are Clear	Eligibility or Selection Criteria Clearly Described	Participants Are Representative of Real-World Patients	All Eligible Participants Enrolled	Sample Size Appropriate for Confidence in Findings	Intervention Clearly Described and Delivered Consistently	Outcome Measures Prespecified Defined/ Valid, Reliable, and Assessed Consistently	Assessors Blinded to Participant Exposure to Intervention	Loss of Follow-Up After Baseline ≤20%	Statistical Methods Examined Changes in Outcome Measures From Before and After Intervention	Outcome Measures Were Collected Multiple Times Before and After the Intervention	Overall Risk-of-Bias Assessment
Chincholkar et al. (2019)	Y	Y	Y	N	N	Y	Y	N	Y	Y	Y	L

Note. Y = yes; N = no. Scoring for the overall risk-of-bias assessment was as follows: 0–3 N = low risk of bias (L). Table format adapted from Quality Assessment Tool for Before–After (Pre–Post) Studies With No Control Group, by National Heart, Lung, and Blood Institute, 2014, (https://www.nhlbi.nih.gov/health-topics/study-quality-assessment-tools).

Table A.5. *OTPF–4* Domain Targeted by Each Intervention

Article	Intervention	Outcome Measures	*OTPF–4* Domain	*OTPF–4* Aspect	Detailed Aspects
Bharathi, Jayaramayya, et al. (2019)	Music (singing, dancing, and musical play)	Social skills	Performance Skills	Social interaction skills	
Bieleninik et al. (2017)	Music (singing or musical play)	Social awareness, ASD symptoms	Performance Skills	Social interaction skills	
			Client Factors	Body functions	Specific mental functions: higher level cognitive, attention
					Emotional and global mental functions: temperament and personality
Chincholkar et al. (2019)	Art (using clay and free drawing)	Social skills: visual response, verbal communication	Performance Skills	Social interaction skills	
Corbett et al. (2019)	Theater (theater games, role play, rehearsal)	Social cognition and behavior	Performance Skills	Social interaction skills	
			Client Factors	Body functions	Specific mental functions: higher level cognitive, attention,
					Emotional and global mental functions: temperament and personality
Corbett et al. (2017)	Theater (theater games, role play, rehearsal)	Anxiety and stress	Client Factors	Body functions	Specific mental functions: Emotional
Corbett et al. (2016)	Theater (theater games,	Social competence	Performance Skills	Social interaction	

From Bernier, A., Ratcliff, K., Hilton, C., Fingerhut, P., & Li, C. Y. (2022). Art interventions for children with autism spectrum disorder: A scoping review. *American Journal of Occupational Therapy, 76,* 7605205030 (https://doi.org/10.5014/ajot.2022.049320). Copyright © 2022 by the American Occupational Therapy Association.

Article	Intervention	Outcome Measures	*OTPF–4* Domain	*OTPF–4* Aspect	Detailed Aspects
	role play, rehearsal)			skills	
Crawford et al. (2017)	Music (singing or musical play)	Responsiveness and social affect	Performance Skills	Social interaction skills	
			Client Factors	Body functions	Specific mental functions: Emotional
Gattino et al. (2011)	Music (listening to music and playing with musical instruments)	Social, verbal, and nonverbal communication	Performance Skills	Social interaction skills	
Ioannou et al. (2020)	Theater (theater games, role play, rehearsal)	Peer interaction and self-reported anxiety	Performance Skills	Social interaction skills	
			Client Factors	Body functions	Specific mental functions: Emotional
Koo & Thomas (2019)	Art (drawing, painting, using clay, crafting)	Social skills, relating to others, consistency of intellectual response	Performance Skills	Social interaction skills	
LaGasse (2014)	Music (creating music in group sessions)	Joint attention and social behaviors	Performance Skills	Social interaction skills, process skills	
Poquérusse et al. (2018)	Music (discussions about emotions while listening to different musical pieces)	Stress	Client Factors	Body functions	Specific mental functions: Emotional
Richard et al. (2015)	Art (constructing different emotions on a face)	Social skills: understanding facial expressions	Performance Skills	Social interaction skills	
Sharda et al. (2018)	Music (playing musical instruments, singing, and using rhythmic cues)	Behavior, receptive vocabulary, ASD symptoms	Performance Skills	Social interaction skills	
			Client Factors	Body functions	Specific mental functions: higher level cognitive, attention

From Bernier, A., Ratcliff, K., Hilton, C., Fingerhut, P., & Li, C. Y. (2022). Art interventions for children with autism spectrum disorder: A scoping review. *American Journal of Occupational Therapy*, *76,* 7605205030 (https://doi.org/10.5014/ajot.2022.049320).

Article	Intervention	Outcome Measures	*OTPF–4* Domain	*OTPF–4* Aspect	Detailed Aspects
					Emotional and global mental functions: temperament and personality
Simpson et al. (2013)	Music (learning through singing names of creatures with pictures)	Labeling and learning	Performance Skills	Process skills	

Note. ASD = autism spectrum disorder; *OTPF–4 = Occupational Therapy Practice and Framework: Domain and Process* (4th ed.).