Supplementary Information:
A meta-analysis of cognitive remediation for schizophrenia: Efficacy and the role of participant and treatment factors

Julia A. Lejeune, B.A., Andrew Northrop, Candidate for B.A., & Matthew M. Kurtz, PhD

Supplement 1: Search Strings used for Literature Search

December 2018 Search Strings:

PubMed (Legacy)

(Schizo* OR psychosis) AND (neurocogn* OR "cognitive rehabilitation") AND (remediation OR training).

Filters: English language, Publication date: 1980 to present

PsycINFO (via EbscoHost)

(Schizo* OR psychosis) AND (neurocogn* OR "cognitive rehabilitation") AND (remediation OR training).

Filters: English language, Publication date: 1980 to present

May 2020 Search Strings:

PubMed (Legacy)

(Psychotic disorders [Mesh] OR Schizophrenia [Mesh] OR schizophrenia [tw]) AND (Cognitive Remediation [Mesh] OR cognitive remediation [tw] OR cognitive training [tw] OR cognitive rehabilitation [tw] OR cognitive enhancement [tw] OR cognitive intervention [tw] OR cognitive therapy [tw] OR neurocognitive remediation [tw] OR neurocognitive training [tw] OR neurocognitive rehabilitation [tw] OR neurocognitive enhancement [tw] OR neurocognitive intervention [tw] OR neurocognitive therapy [tw]) AND (randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR drug therapy[sh] OR randomly[tiab] OR trial[tiab] OR groups[tiab] NOT (animals [mh] NOT humans [mh]))

Filters: English language, Publication date: 1980 to present

PsycINFO (via EbscoHost)

(DE "Schizophrenia" OR DE "Acute Schizophrenia" OR DE "Catatonic Schizophrenia" OR DE "Childhood Schizophrenia" OR DE "Paranoid Schizophrenia" OR DE "Process Schizophrenia" OR DE "Schizoaffective Disorder" OR DE "Schizophrenia (Disorganized Type)" OR DE "Schizophreniform Disorder" OR DE "Undifferentiated Schizophrenia") AND (TI “cognitive remediation” OR AB “cognitive remediation” OR KW “cognitive remediation” OR TI “cognitive training” OR AB “cognitive training” OR KW “cognitive training” OR TI “cognitive rehabilitation” OR AB “cognitive rehabilitation” OR KW “cognitive rehabilitation” OR TI “cognitive enhancement” OR AB “cognitive enhancement” OR KW “cognitive enhancement” OR TI “cognitive intervention” OR AB “cognitive intervention” OR KW “cognitive intervention” OR TI “cognitive therapy” OR AB “cognitive therapy” OR KW “cognitive therapy” OR TI “neurocognitive remediation” OR AB “neurocognitive remediation” OR KW “neurocognitive remediation” OR TI “neurocognitive training” OR AB “neurocognitive training” OR KW “neurocognitive training” OR TI “neurocognitive rehabilitation” OR AB “neurocognitive rehabilitation” OR KW “neurocognitive rehabilitation” OR TI “neurocognitive enhancement” OR AB “neurocognitive enhancement” OR KW “neurocognitive enhancement” OR TI “neurocognitive intervention” OR AB “neurocognitive intervention” OR KW “neurocognitive intervention” OR TI “neurocognitive therapy” OR AB “neurocognitive therapy” OR KW “neurocognitive therapy”) AND (DE "Treatment Effectiveness Evaluation" OR DE "Treatment Outcomes" OR DE "Psychotherapeutic Outcomes" OR DE "Side Effects (Treatment)" OR DE "Treatment Compliance" OR DE "Treatment Duration" OR DE "Treatment Refusal" OR DE "Treatment Termination" OR DE "Treatment Withholding" OR DE "Placebo" OR DE "Followup Studies" OR TI “placebo*” OR AB “placebo*” OR KW “placebo*” OR TI “random*” OR AB “random*” OR KW “random*” OR TI “comparative stud*” OR AB “comparative stud*” OR KW “comparative stud*” OR ((TI “clinical” OR AB “clinical” OR KW “clinical”) AND (TI “trial*” OR AB “trial*” OR KW “trial*”)) OR ((TI “research” OR AB “research” OR KW “research”) AND (TI “design” OR AB “design” OR KW “design”)) OR ((TI “evaluat*” OR AB “evaluat*” OR KW “evaluat*”) AND (TI “stud*” OR AB “stud*” OR KW “stud*”)) OR ((TI “prospectiv*” OR AB “prospectiv*” OR KW “prospectiv*”) AND (TI “stud*” OR AB “stud*” OR KW “stud*”)) OR ((TI “singl*” OR AB “singl*” OR KW “singl*” OR TI “doubl*” OR AB “doubl*” OR KW “doubl*” OR TI “trebl*” OR AB “trebl*” OR KW “trebl*” OR TI “tripl*” OR AB “tripl*” OR KW “tripl*”) AND (TI “blind*” OR AB “blind*” OR KW “blind*” OR TI “mask*” OR AB “mask*” OR KW “mask*”)))

Filters: English language, Publication date: 1980 to present.

Supplement 2: Table of Included Tests Grouped by Outcome Domain

Attention/Vigilance Matric Consensus Cognitive Battery (MCCB) Attention CPT (various forms) Stroop color or word test score Digit Vigilance Test d2 Test of Attention Scanning Test for Sustained Attention Sustained Attention Test mean duration of attentiveness Letter Cancellation Test	**Reasoning/Problem Solving** MCCB Reasoning Wisconsin Card Sorting Test (WCST) Brief Assessment of Cognition (BACS) Tower of London BACS Problem Solving Domain Strategic Target Detection Test (STDT) Delis-Kaplan Executive Function Scale (DKEFS): Tower Test DKEFS: Sorting Test Stroop Test Interference condition Penn Conditional Exclusion Test (PCET) MCCB Mazes Tower of Hanoi	**Working Memory** MCCB Working Memory BACS Digit Sequencing Digit Span - backward MCCB LNS Trailmaking Test Part B (TMTB) TMT B-TMT A Letter-Number Sequencing Task Auditory Number Sequencing Digit Span Backward WMS-III Digit Span WAIS, WAIS-R, WAIS-III, WAIS-IV Digit Span N-Back Test Digit Span Distractibility Test: distractibility condition WAIS-III Forward Digit Span	**Verbal Learning and Memory** Hong Kong List Learning Test BACS List Learning WMS, WMS-R, WMS-III Logical Memory Word List Recall Test MCCB Verbal learning Auditory Verbal Learning Test BACS Verbal Memory Word List Memory Test WMS Logical Memory Immediate Hopkins Verbal Learning Test MCCB Verbal Learning and Memory California Verbal Learning Rey Auditory Verbal Learning Test RBANS- Immediate Memory Spain-Complutence Verbal Learning Test Rivermead Behavioral Memory Test: Story Recall Grober and Buschke Learning Test
Visual Learning and Memory MCCB Visual Learning Picture Memory and Interference Test Face Memory Test Rey Osterreith Complex Figure Test: Recall WMS-III Faces WMS, WMS-III Visual reproduction Spatial Episodic Memory Visual Span Test	**Processing speed** MCCB Speed of Processing BACS Verbal Fluency Trailmaking Test A Semantic Fluency (category Instances) Letter fluency BACS Processing Speed Domain Digit Symbol Comprehensive Trail Making Test Trials 1-4	**Social Cognition** MCCB Social Cognition MCCB MSCEIT (Managing Emotions) Reading the Mind in the Eyes Test Hinting Task Facial Affect Recognition	**Global Cognition** Global Cognition (derived by the investigator from average of tests in specific study) MCCB Global Cognition BACS-J Composite Score RBANS Total BACS Total
Depression PANSS Depression Beck Depression Inventory-II (BDI-II) BPRS Depression/Anxiety Calgary Depression Scale for Schizophrenia (CDSS) Center for Epidemiologic Studies-Depression Scale Hamilton Depression Rating Scale (HAM-D)		**Total Symptoms** Brief Psychiatric Rating Scale (BPRS) Positive and Negative Syndrome Scale (PANSS)	**Positive Symptoms** PANSS positive Scale for the Assessment of Positive Symptoms **Negative Symptoms** PANSS negative Scale for the Assessment of Negative Symptoms
Recovery Maryland Assessment of Recovery in Serious Mental Illness (MARS) Revised Self Efficacy Scale Self-Efficacy Scale: Self-Esteem Quality of Life: subjective QOL Rosenberg self-esteem Self-Efficacy - Social Situations Subscale Quality of Life Interview (Global Life Satisfaction)	**Functional Capacity** UCSD Performance-Based Skills Assessment (UPSA, UPSA-B) Ecological tests Assessment of Interpersonal Problem-Solving Scale (AIPSS)	**Functional Outcome** Global Assessment of Function (GAF) EUROHIS-QOL (Euro Health Interview Survey QOL) Heinrich's and Lehman Quality of Life Scale Personal and Social Performance Scale Independent Living Skills (ILS) Independent Living Skills, Problem Solving (ILS-PS) Social and Occupational Functional Assessment Scale (SOFAS) Strauss-Carpenter Level of Function Scale LASMI work Teacher Assessment: Composite Score Hours Worked	Work Behavior Inventory Scale of Social Skills of chronic schizophrenia Inpatient Score (SSSI) Global Assessment of Function Nurse Observation Scale Inpatient Evaluation (NOSIE) Social Behavior Schedule (SBS) Life Skills Profile Total Score Quality of Life EQ-5D Hours per week in structured activity Social and work activities Independent Living Skills Inventory Social Behavior Schedule

Supplement 3: Demographic, Study, and Treatment Characteristics of Included Studies

Study Citation; Country	Sample Characteristics: Mean age (years); Mean education (years); Mean duration of illness (years); % male	Clinical Status of Sample (Inpatient, Outpatient, or Mixed)	Total Participant Sample Size	CR Program Name	Remediation Approach (drill and practice vs. drill and strategy)	Computer Exposure (Yes/No)	Therapist Exposure During CR (yes/no)	Adjunctive Strategy Coaching (Yes/No)	Weekly bridging group (Yes/No)	Size of CR Sessions (Group vs. Individual)	Nature of Adjuctive Psychiatric Rehabilitation (None/Not Evidence-Based/ Evidence-Based)	Aim for Duration of Treatment (Hours)	Number of CR Sessions per Week	Type of Control (Active vs. Passive)	CTAM Score
Ahmed et al., 2015; USA[1]	40.5; 9.84; NR; 87.32	Inpatient	78	Brain HQ/ Brain Fitness	Drill and practice	Yes	Yes	No	Yes	Group	None	40	3	Active	76
Au et al., 2015; Hong Kong[2]	36.14; 14.95; 11.21; 63.33	Outpatient	90	Combination Strong Arm System and Captain's Log	Drill and practice	Yes	No	No	No	Individual	Evidence-Based	72	3	Active	76
Balzan et al., 2019; Australia[3]	37.21; 11.41; 11.11; 59.5	Outpatient	54	HappyNeuron Pro	Drill and practice	Yes	Yes	No	No	Individual	None	7	1	Active	69
Bellucci et al., 2002; USA[4]	42; 12.6; 16.6; NR	Outpatient	34	Captain's Log	Drill and practice	Yes	Yes	No	No	Individual	Not Evidence-Based	8	2	Passive	58
Benedict et al., 1994; USA[5]	38.82; 11.04; NR; 51.49	Outpatient	33	PSSCogRehab	Drill and practice	Yes	Yes	No	No	Individual	Not Evidence-Based	21	3	Passive	46
Bryce et al., 2018; Australia[6]	41.03; 13.14; 14.12; 69.86	Outpatient	66	COGPACK	Drill and practice	Yes	Yes	Yes	No	Group	None	20	2	Active	74
Bucci et al., 2013; Italy[7]	38.22; 10.62; 17.1; 81.04	Outpatient	58	RehaCom	Drill and practice	Yes	Yes	Yes	No	Individual	None	48	2	Active	75
Burda et al., 1994; USA[8]	46.63; 12.45; NR; NR	Inpatient	69	Captain's Log	Drill and practice	Yes	No	No	No	Group	Not Evidence-Based	12	3	Passive	46
Byrne et al., 2013; China[9]	46.55; 10.81; 24.81; 100	Inpatient	31	Author-developed program	Drill and practice	Yes	No	No	No	Individual	None	12	3	Passive	52
Cavallaro et al., 2009; Italy[10]	33.62; 11.72; 8.2; NR	Outpatient	86	COGPACK	Drill and practice	Yes	Yes	Yes	No	Individual	Not Evidence-Based	36	3	Active	45
Cavallo et al., 2013; Italy[11]	42.3; 11; 17.2; 70	Outpatient	10	Brainer	Drill and practice	Yes	Yes	No	No	Individual	Not Evidence-Based	18	3	Active	68
Choi et al., 2018; Korea[12]	49.66; 11.19; 23.03; 57.9	Inpatient	38	PSSCogRehab	Drill and practice	Yes	Yes	No	Yes	Individual	Evidence-Based	20	2	Passive	61
d'Amato et al., 2011; France[14]	32.81; 12.31; 8.4; 75.34	Outpatient	87	RehaCom	Drill and practice	Yes	Yes	No	No	Individual	None	28	2	Passive	71
Dickinson et al., 2010; USA[15]	47.61; 12.47; NR; 69.83	Outpatient	63	Author-developed program	Drill and strategy	Yes	Yes	Yes	No	Individual	None	36	3	Active	78
Donohoe et al., 2017; Ireland[16]	43.31; 13.97; NR; 60.03	Outpatient	90	Computer-assisted WM training (McAvinue et al., 2013)	Drill and strategy	Yes	Yes	Yes	No	Individual	None	27	5	Active	78
Drake et al., 2014; United Kingdom[17]	24.06; NR; 1; 60.62	Outpatient	61	CIRCUITS	Drill and strategy	Yes	Yes	No	No	Individual	Evidence-Based	40	5	Active	86
Fisher et al., 2014; USA[18]	21.22; 12.87; 1.63; 74.4	Outpatient	86	PositScience	Drill and practice	Yes	No	No	No	Individual	None	40	5	Active	80
Fisher et al., 2016; USA[19]	41.88; 13.28; NR; 72.41	Outpatient	87	PositScience	Drill and practice	Yes	No	No	No	Individual	None	50	5	Active	76
Fiszdon et al., 2016; USA[20]	47.81; 12.37; NR; 73.33	Outpatient	75	PSSCogRehab	Drill and strategy	Yes	Yes	No	No	Individual	None	40	5	Passive	59
Garcia-Fernadez et al., 2019; Spain[21]	25.51; 13.38; 1; 68.61	Outpatient	110	Rehacom	Drill and practice	Yes	Yes	No	No	Individual	Not Evidence-Based	24	2	Active	68
Garrido et al., 2013; Spain[22]	33.3; 9.85; 11.34; 73.16	Outpatient	67	Combination Gexpert and Bracy Soft Tools Program	Drill and strategy	Yes	Yes	Yes	No	Individual	None	48	2	Active	69
Gharaeipour & Scott, 2012; Iran[23]	28.72; 10.74; 1.28; 71.45	Inpatient	42	CRT (Wykes & Reeder, 2005)	Drill and strategy	No	Yes	Yes	Yes	Group	None	40	5	Active	65
Gomar et al., 2015; Spain[24]	46.4; 9.42; 23.43; 65.52	Mixed	87	FesKits	Drill and practice	Yes	No	No	No	Group	None	36	2	Active	89
Greig et al., 2007; USA[25]	40.37; 12.74; NR; 53.32	Outpatient	62	Combination PSSCogRehab and Sci-Learn	Drill and practice	Yes	No	No	Yes	Individual	Evidence-Based	126	4	Passive	67
Hodge et al., 2010; Australia[26]	31.33; 11; NR; 60	Mixed	40	NEAR (Medalia & Freilich, 2008)	Drill and practice	Yes	Yes	Yes	No	Individual	None	30	2	Passive	50
Holzer et al., 2014; Switzerland[27]	15.53; 8.02; 2.7; 56.13	Outpatient	32	Captain's Log	Drill and practice	Yes	Yes	No	No	Individual	Not Evidence-Based	12	2	Active	75
Horan et al., 2011; USA[28]	45.9; 13.02; NR; 84.55	Outpatient	45	PositScience	Drill and practice	Yes	No	No	No	Group	None	24	2	Active	68
Iwata et al., 2017; Japan[29]	34.36; NR; 11.9; 24.99	Outpatient	60	COGPACK	Drill and practice	Yes	Yes	Yes	Yes	Group	Evidence-Based	24	2	Passive	77
Jahshan et al., 2019; USA[30]	51.42; 12.78; 31.53; 77.93	Outpatient	59	PositScience	Drill and practice	Yes	No	No	No	Group	None	36	3	Active	76
Katsumi et al., 2019; Japan[31]	37.75; 11.95; 13.9; 59.1	Outpatient	44	NEAR (Medalia & Freilich, 2008)	Drill and practice	Yes	Yes	No	Yes	Group	Not Evidence-Based	15	3	Passive	49
Keefe et al., 2012; USA[32]	37; 13.49; NR; 73.6	Outpatient	53	PositScience	Drill and practice	Yes	Yes	No	Yes	Individual	None	40	4	Active	80
Kidd et al., 2014; Canada[33]	34.19; 12.53; 6.85; 45.89	Outpatient	37	COGPACK	Drill and practice	Yes	Yes	No	Yes	Group	Not Evidence-Based	20	2	Active	59
Kukla et al., 2018; USA[34]	48.48; 12.9; NR; 92	Outpatient	50	PositScience	Drill and practice	Yes	No	No	No	Group	Evidence-Based	50	2	Active	68
Kurtz et al., 2007; USA[35]	34.98; 13.15; 10.46; 66.33	Outpatient	42	PSSCogRehab	Drill and practice	Yes	Yes	No	No	Group	Not Evidence-Based	100	3	Active	60
Kurtz et al., 2015; USA[36]	36.64; 12.07; 12.59; 73	Outpatient	64	PSSCogRehab	Drill and practice	Yes	Yes	No	No	Group	Evidence-Based	50	NR	Active	63
Lee, 2013; Korea[37]	43.5; 12.78; 17.64; 54.99	Inpatient	60	Cog-trainer	Drill and strategy	Yes	Yes	No	No	Group	Not Evidence-Based	20	2	Passive	55
Lindenmayer et al., 2008; USA[38]	43.46; 10.63; NR; 89.59	Inpatient	85	COGPACK	Drill and practice	Yes	Yes	No	Yes	Group	Evidence-Based	24	2	Active	70

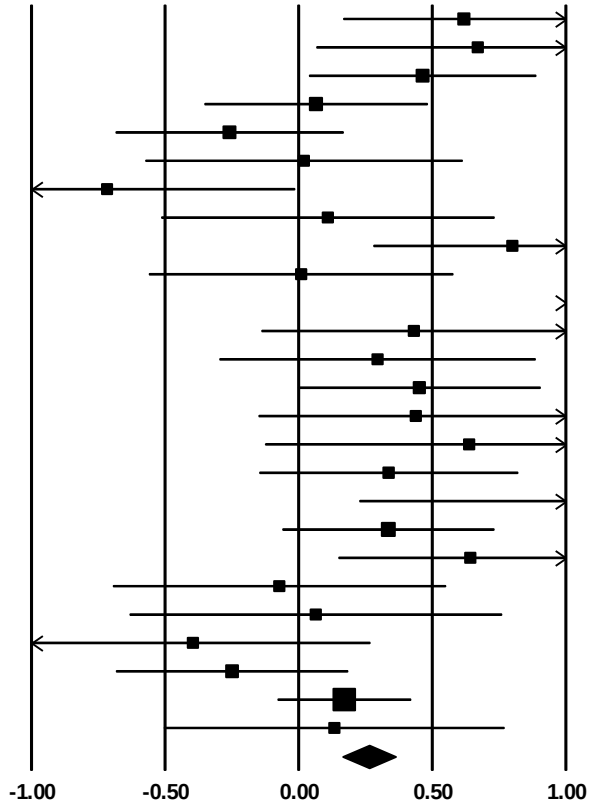
Study Citation; Country	Sample Characteristics: Mean age (years); Mean education (years); Mean duration of illness (years); % male	Clinical Status of Sample (Inpatient, Outpatient, or Mixed)	Total Participant Sample Size	CR Program Name	Remediation Approach (drill and practice vs. drill and strategy)	Computer Exposure (Yes/No)	Therapist Exposure During CR (yes/no)	Adjunctive Strategy Coaching (Yes/No)	Weekly bridging group (Yes/No)	Size of CR Sessions (Group vs. Individual)	Nature of Adjuctive Psychiatric Rehabilitation (None/Not Evidence-Based/ Evidence-Based)	Aim for Duration of Treatment (Hours)	Number of CR Sessions per Week	Type of Control (Active vs. Passive)	CTAM Score
López-Luengo & Vázquez et al., 2003; Spain[39]	33.55; NR; 13.21; 83.29	Outpatient	24	Auditory Processing Training (APT)	Drill and practice	No	Yes	Yes	No	Individual	None	37.5	2	Passive	49
Lu et al., 2012; China[40]	37.5; 10.5; 23.5; 61.1	Inpatient	126	CRT (Delahunty & Morice 1993)	Drill and strategy	No	Yes	Yes	No	Group	Not Evidence-Based	45	5	Active	45
Mak et al., 2013; Poland[41]	36.47; NR; 9.99; 45.66	Outpatient	81	RehaCom	Drill and practice	Yes	No	No	No	Individual	None	10.67	2	Passive	41
McGurk et al., 2005 & 2007; USA[42]	35.6; 11.3; 12.88; 54.5	Outpatient	44	COGPACK	Drill and practice	Yes	Yes	Yes	No	Individual	Evidence-Based	24	2	Active	65
McGurk et al., 2016; USA[43]	37.69; NR; NR; 70.38	Outpatient	54	COGPACK	Drill and practice	Yes	Yes	Yes	No	Individual	Evidence-Based	24	2	Active	73
Medalia et al., 1998; USA[44]	32.5; 10.8; NR; 77.5	Inpatient	54	ORM (Ben-Yishay et al. 1987)	Drill and practice	Yes	Yes	No	No	Individual	None	6	3	Active	63
Medalia et al., 2000; USA[45]	36.3; 10.5; NR; 55.56	Inpatient	36	Author-developed program	Drill and practice	Yes	Yes	Yes	No	Individual	None	5	2	Passive	79
Mendella et al., 2015; Canada[46]	24.92; 13.22; 1; 74.1	Outpatient	27	Compensatory Cognitive Training (CCT)	Drill and strategy	No	Yes	No	No	Group	Evidence-Based	24	1	Passive	57
Moritz et al., 2013; Germany[47]	34.78; 11.46; NR; 62.65	Mixed	150	COGPACK	Drill and practice	Yes	No	No	No	Group	Not Evidence-Based	16	NR	Active	79
Moritz et al., 2015; Germany[48]	38.57; NR; NR; 35	Mixed	60	Mybraintraining	Drill and practice	Yes	No	No	No	Individual	None	NR	2	Passive	54
O'Reilly et al. 2019; Ireland[49]	40.96; NR; NR; 84.61	Inpatient	65	Author-developed program	Drill and strategy	Yes	Yes	No	Yes	Individual	Not Evidence-Based	42	3	Passive	87
Omiya et al., 2016; Japan[50]	41; 13.35; 13.18; 41.15	Mixed	17	Frontal-Executive Program CRT (Delahunty & Morris, 1993)	Drill and strategy	No	Yes	Yes	No	Individual	Not Evidence-Based	44	2	Passive	46
Ostergaard Christensen et al., 2014; Denmark[51]	24.95; NR; 1; 53.82	Outpatient	117	NEUROCOM	Drill and strategy	Yes	Yes	Yes	Yes	Individual	Evidence-Based	32	2	Active	75
Penadés et al., 2006; Spain[52]	35.14; 10.15; 13.8; 57.5	Outpatient	40	Frontal-Executive Program CRT (Delahunty & Morice, 1993)	Drill and strategy	No	Yes	No	No	Individual	None	40	3	Active	65
Penadés et al., 2013; Spain[53]	36.97; 11.77; 12.93; 77.08	Outpatient	35	Frontal-Executive Program CRT (Delahunty & Morice, 1993)	Drill and strategy	No	Yes	No	No	Individual	None	40	3	Active	71
Penadés et al., 2018; Spain[54]	40.07; NR; 15.89; 68.55	Outpatient	70	Frontal-Executive Program CRT (Delahunty & Morice, 1993)	Drill and strategy	No	Yes	No	No	Individual	None	40	2.5	Active	61
Pontes et al., 2013; Brazil[55]	38.14; 10.33; 15.15; 82.41	Outpatient	17	Author-developed program	Drill and strategy	No	Yes	Yes	No	Group	None	20	1	Active	74
Popova et al., 2014; Germany[56]	35.95; 11.05; NR; 71.05	Inpatient	38	PositScience	Drill and practice	Yes	No	No	No	Individual	None	20	5	Passive	45
Puig et al., 2014; Spain[57]	16.75; 8.25; 1.4; 52	Outpatient	50	CRT (Wykes & Reeder, 2005)	Drill and strategy	No	Yes	No	No	Individual	None	40	2	Passive	68
Ramsay et al., 2017; USA[58]	44.18; 13; 19.85; NR	Outpatient	27	PSSCogRehab	Drill and practice	Yes	Yes	No	Yes	Group	None	48	3	Active	71
Rass et al., 2012; USA[59]	41.3; NR; 20.25; 61.75	Outpatient	34	Auditory Processing Training (APT)	Drill and practice	Yes	No	No	No	Individual	None	40	2	Active	65
Reeder et al., 2017; United Kingdom[60]	38.3; 13.25; NR; 64.55	Mixed	93	CIRCUITS	Drill and strategy	Yes	Yes	No	No	Individual	None	40	3	Passive	77
Royer et al., 2012; France[62]	32.76; 11.41; 11.07; NR	Outpatient	46	RehaCom	Drill and strategy	Yes	Yes	Yes	No	Group	None	144	3	Passive	32
Sartory et al., 2005; Germany[63]	31.9; 10.3; 6.15; 66.7	Inpatient	42	COGPACK	Drill and practice	Yes	No	No	No	Group	None	11.25	5	Passive	58
Silverstein et al., 2005; USA[64]	39.29; 10.5; NR; 87.07	Inpatient	31	Attention Processing Training (APT)	Drill and practice	No	Yes	No	No	Individual	Evidence-Based	NR	NR	Passive	45
Silverstein et al., 2014; USA[65]	43.99; 11.97; NR; 74.07	Outpatient	81	Attention Shaping (AS)	Drill and practice	No	Yes	No	No	Group	Evidence-Based	45	2	Active	62

Study Citation; Country	Sample Characteristics: Mean age (years); Mean education (years); Mean duration of illness (years); % male	Clinical Status of Sample (Inpatient, Outpatient, or Mixed)	Total Participant Sample Size	CR Program Name	Remediation Approach (drill and practice vs. drill and strategy)	Computer Exposure (Yes/No)	Therapist Exposure During CR (yes/no)	Adjunctive Strategy Coaching (Yes/No)	Weekly bridging group (Yes/No)	Size of CR Sessions (Group vs. Individual)	Nature of Adjuctive Psychiatric Rehabilitation (None/Not Evidence-Based/ Evidence-Based)	Aim for Duration of Treatment (Hours)	Number of CR Sessions per Week	Type of Control (Active vs. Passive)	CTAM Score
Tan & King, 2013; Australia[66]	34.69; 11.14; 10.58; 57.13	Outpatient	70	PSSCogRehab	Drill and strategy	Yes	Yes	Yes	Yes	Group	Evidence-Based	48	2	Active	83
Tan et al., 2016; China[67]	46.43; 9.92; 22.73; 60	Inpatient	104	Frontal-Executive Program CRT (Deluhanty & Morice, 1993)	Drill and strategy	No	Yes	Yes	No	Group	None	40	5	Active	76
Tan et al., 2019; China[68]	45.1; 11.78; 20.43; 61.39	Inpatient	311	CRT (Wykes & Reeder, 2005)	Drill and strategy	Yes	No	No	No	Group	None	37.5	4	Active	70
Thomas et al., 2018; USA[69]	35.11; 11.82; 15.69; 47.78	Inpatient	46	PositScience	Drill and practice	Yes	No	No	No	Group	Not Evidence-Based	40	5	Passive	45
Twamley et al., 2012; USA[70]	46.32; 12.94; 23.26; 65.22	Outpatient	69	Compensatory Cognitive Training (CCT)	Drill and strategy	No	Yes	Yes	No	Group	None	24	1	Passive	73
Vauth et al., 2005; Switzerland[71]	28.5; 12.75; 5.56; 66.3	Inpatient	93	Author-developed program	Drill and strategy	Yes	Yes	Yes	No	Group	Evidence-Based	24	2	Active	80
Wölwer et al., 2005; Germany[72]	35.93; NR; NR; 71.43	Inpatient	49	COGPACK	Drill and practice	Yes	Yes	No	No	Group	None	9	2	Passive	78
Wykes et al., 1999; United Kingdom[73]	38.49; 12.34; NR; 75.77	Mixed	33	CRT (Delahunty & Morice, 1993)	Drill and strategy	No	Yes	Yes	No	Individual	Not Evidence-Based	40	3	Active	61
Wykes et al., 2007; United Kingdom[74]	18.18; NR; 1.09; 64.85	Mixed	40	CRT (Delahunty & Morice, 1993)	Drill and strategy	No	Yes	Yes	No	Individual	None	40	5	Passive	76
Wykes et al., 2007; United Kingdom[75]	36; NR; NR; 73	Outpatient	85	CRT (Delahunty & Morice, 1993)	Drill and strategy	No	Yes	Yes	No	Individual	None	40	3	Passive	90

Supplement 4: Forest Plots for Significant Outcomes

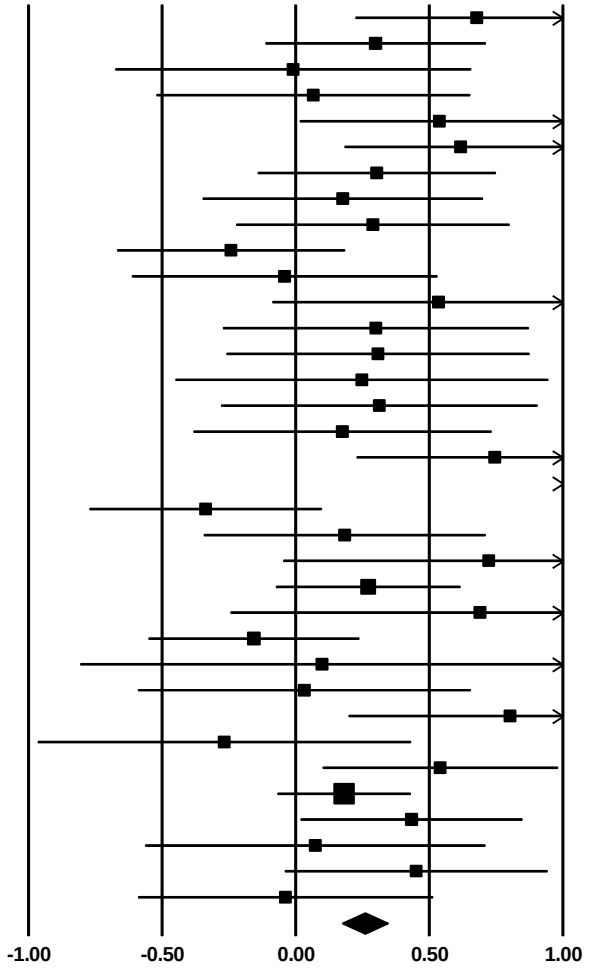
Global Cognition Effects

Study name	Hedges's g	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Ahmed et al. 2015	0.618	0.230	0.053	0.167	1.070	2.686	0.007
Bryce et al. 2018	0.671	0.308	0.095	0.067	1.275	2.177	0.029
Fisher et al. 2014	0.464	0.217	0.047	0.040	0.889	2.142	0.032
Fisher et al. 2016	0.065	0.213	0.045	-0.352	0.482	0.306	0.760
Garcia-Fernadez et al. 2019	-0.259	0.218	0.047	-0.685	0.168	-1.188	0.235
Gharaeipour et al. 2012	0.020	0.303	0.092	-0.574	0.613	0.066	0.948
Holzer et al. 2014	-0.717	0.359	0.129	-1.420	-0.014	-1.998	0.046
Horan et al. 2011	0.110	0.318	0.101	-0.513	0.733	0.345	0.730
Iwata et al. 2017	0.800	0.265	0.070	0.280	1.320	3.016	0.003
Jahshan et al. 2019	0.010	0.290	0.084	-0.559	0.579	0.033	0.974
Katsumi et al. 2019	1.799	0.353	0.124	1.108	2.491	5.100	0.000
Keefe et al. 2012	0.431	0.291	0.085	-0.139	1.001	1.483	0.138
Kukla et al. 2018	0.295	0.302	0.091	-0.296	0.887	0.979	0.328
Lindenmayer et al. 2008	0.452	0.231	0.053	-0.002	0.905	1.953	0.051
McGurk et al. 2005	0.438	0.300	0.090	-0.150	1.026	1.461	0.144
Mendella et al. 2015	0.639	0.390	0.152	-0.125	1.402	1.639	0.101
O'Reilly et al. 2019	0.337	0.247	0.061	-0.147	0.821	1.366	0.172
Omiya et al. 2016	1.221	0.506	0.257	0.228	2.213	2.410	0.016
Ostergaard Christensen et al. 2014	0.336	0.202	0.041	-0.060	0.732	1.662	0.097
Penadés et al. 2018	0.643	0.252	0.063	0.150	1.136	2.555	0.011
Popova et al. 2014	-0.072	0.318	0.101	-0.695	0.551	-0.227	0.821
Puig et al. 2014	0.064	0.355	0.126	-0.632	0.761	0.181	0.856
Rass et al. 2012	-0.395	0.338	0.114	-1.058	0.268	-1.168	0.243
Silverstein et al. 2014	-0.249	0.221	0.049	-0.683	0.185	-1.125	0.261
Tan et al. 2019	0.171	0.127	0.016	-0.078	0.420	1.344	0.179
Thomas et al. 2018	0.134	0.325	0.106	-0.503	0.771	0.411	0.681
	0.263	0.050	0.003	0.165	0.362	5.230	0.000



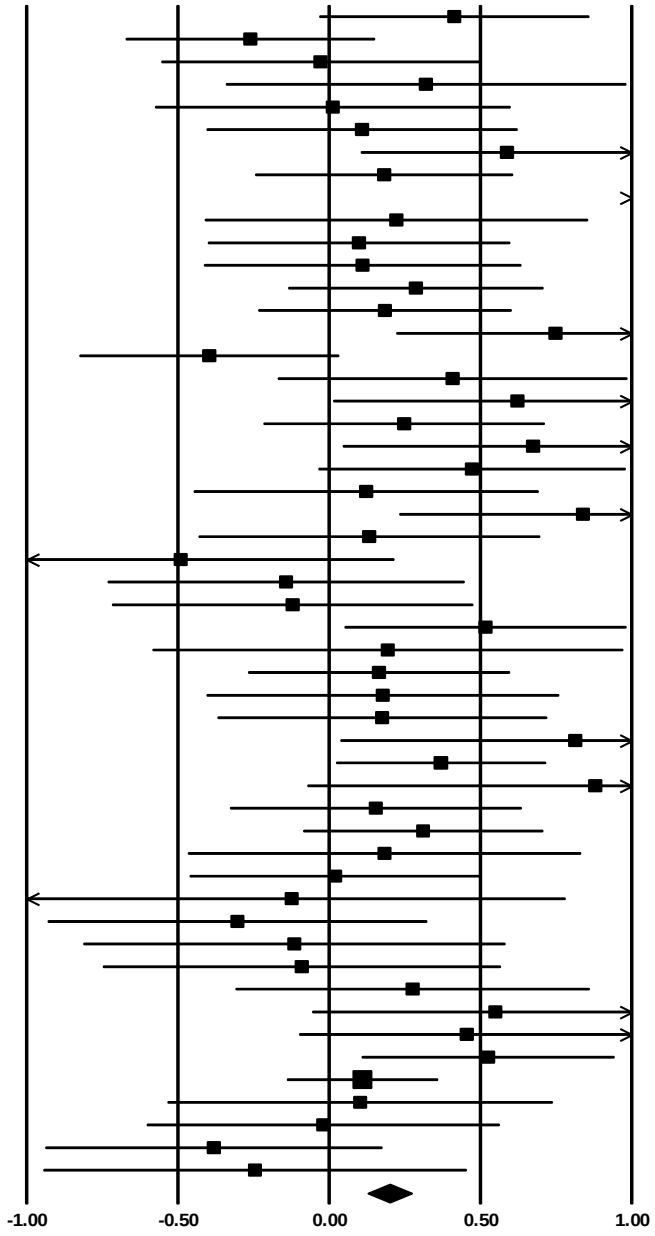
Attention Effects

Study name	Hedges's g	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Ahmed et al. 2015	0.678	0.231	0.054	0.224	1.131	2.930	0.003
Au et al. 2015	0.299	0.210	0.044	-0.113	0.711	1.423	0.155
Benedict et al. 1994	-0.009	0.340	0.115	-0.675	0.657	-0.027	0.978
Bryce et al. 2018	0.066	0.300	0.090	-0.521	0.653	0.220	0.826
Bucci et al. 2013	0.538	0.266	0.071	0.016	1.060	2.020	0.043
Cavallaro et al. 2009	0.618	0.222	0.049	0.183	1.052	2.786	0.005
d'Amato et al. 2011	0.303	0.227	0.052	-0.141	0.748	1.337	0.181
Donohoe et al. 2017	0.176	0.267	0.072	-0.348	0.700	0.659	0.510
Fiszdon et al. 2016	0.289	0.261	0.068	-0.222	0.800	1.108	0.268
Garcia-Fernandez et al. 2019	-0.242	0.217	0.047	-0.668	0.184	-1.112	0.266
Garrido et al. 2013	-0.041	0.292	0.085	-0.613	0.530	-0.142	0.887
Hodge et al. 2010	0.535	0.317	0.101	-0.087	1.157	1.686	0.092
Jahshan et al. 2019	0.300	0.292	0.085	-0.272	0.872	1.029	0.304
Keefe et al. 2012	0.308	0.289	0.084	-0.258	0.875	1.066	0.286
Kidd 2014	0.248	0.356	0.127	-0.450	0.945	0.696	0.486
Kukla et al. 2018	0.313	0.302	0.091	-0.279	0.905	1.037	0.300
Kurtz et al. 2015	0.175	0.285	0.081	-0.383	0.733	0.615	0.538
Lee 2013	0.745	0.264	0.070	0.228	1.262	2.826	0.005
López-Luengo et al. 2003	7.483	1.150	1.323	5.228	9.737	6.506	0.000
Mak et al. 2013	-0.337	0.222	0.049	-0.771	0.098	-1.519	0.129
Medalia et al. 1998	0.183	0.269	0.072	-0.343	0.710	0.682	0.495
Mendella et al. 2015	0.723	0.392	0.154	-0.046	1.492	1.842	0.065
Moritz et al. 2013	0.272	0.176	0.031	-0.073	0.617	1.543	0.123
Omiya et al. 2016	0.690	0.476	0.227	-0.243	1.623	1.449	0.147
Ostergaard Chistensen et al. 2014	-0.156	0.201	0.040	-0.550	0.238	-0.778	0.437
Pontes et al. 2013	0.099	0.462	0.213	-0.806	1.003	0.214	0.830
Popova et al. 2014	0.033	0.318	0.101	-0.590	0.655	0.102	0.918
Royer et al. 2012	0.803	0.309	0.095	0.198	1.408	2.603	0.009
Silverstein et al, 2005	-0.267	0.356	0.127	-0.965	0.431	-0.750	0.453
Silverstein et al. 2014	0.541	0.225	0.050	0.101	0.981	2.410	0.016
Tan et al. 2019	0.181	0.127	0.016	-0.068	0.431	1.423	0.155
Tan et al. 2016	0.434	0.212	0.045	0.019	0.848	2.049	0.040
Thomas et al. 2018	0.074	0.325	0.105	-0.563	0.710	0.226	0.821
Vauth et al. 2005	0.451	0.251	0.063	-0.040	0.942	1.800	0.072
Wölwer et al. 2005	-0.038	0.281	0.079	-0.589	0.513	-0.135	0.893
	0.259	0.043	0.002	0.174	0.344	5.980	0.000



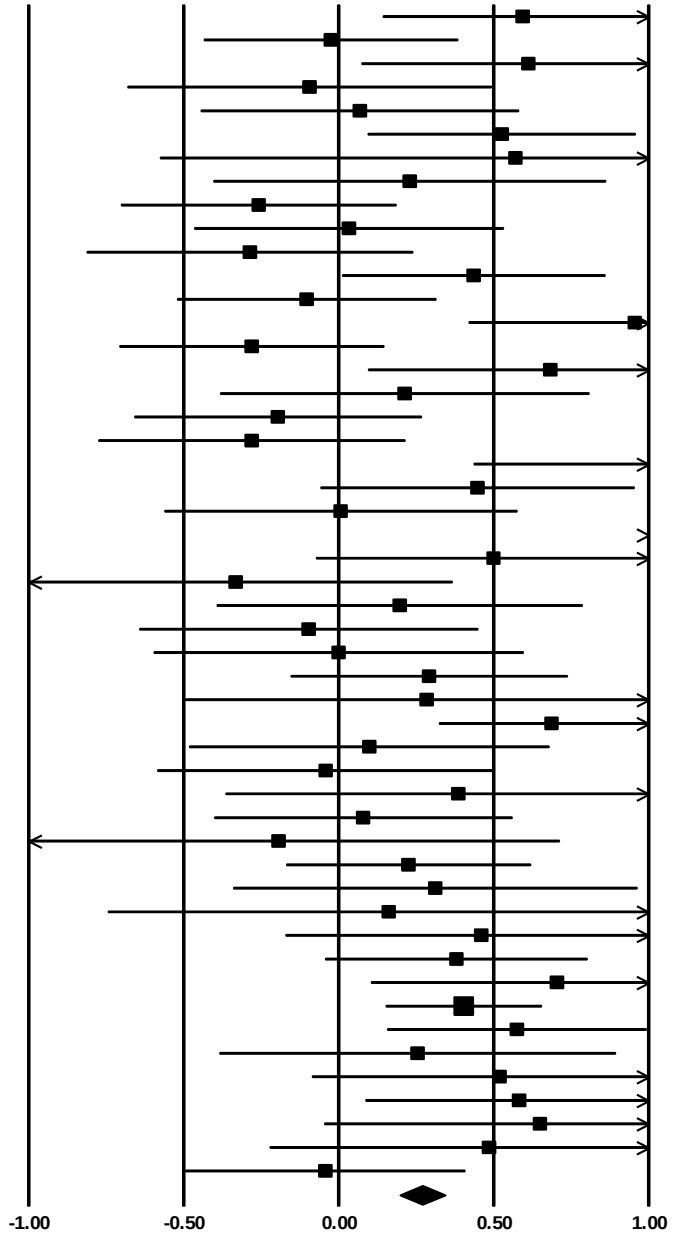
Processing Speed Effects

Study name	Hedges's g	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Ahmed et al. 2015	0.414	0.227	0.052	-0.032	0.859	1.820	0.069
Au et al. 2015	-0.260	0.210	0.044	-0.672	0.151	-1.240	0.215
Balzan et al. 2019	-0.028	0.268	0.072	-0.554	0.497	-0.106	0.916
Bellucci et al. 2002	0.320	0.337	0.114	-0.341	0.981	0.950	0.342
Bryce et al. 2018	0.012	0.299	0.090	-0.575	0.599	0.041	0.968
Bucci et al. 2013	0.109	0.262	0.069	-0.404	0.622	0.416	0.678
Burda et al. 1994	0.588	0.246	0.061	0.105	1.071	2.388	0.017
Cavallaro et al. 2009	0.182	0.217	0.047	-0.244	0.607	0.838	0.402
Cavallo et al. 2013	2.988	0.879	0.773	1.265	4.710	3.399	0.001
Choi et al. 2018	0.222	0.323	0.104	-0.411	0.855	0.688	0.491
Dickinson et al. 2010	0.099	0.255	0.065	-0.400	0.598	0.388	0.698
Donohoe et al. 2017	0.111	0.267	0.071	-0.413	0.634	0.414	0.679
Fisher et al. 2014	0.287	0.215	0.046	-0.134	0.708	1.335	0.182
Fisher et al. 2016	0.185	0.213	0.046	-0.234	0.603	0.865	0.387
Fiszdon et al. 2016	0.748	0.268	0.072	0.223	1.274	2.790	0.005
Garcia-Fernadez et al. 2019	-0.396	0.219	0.048	-0.825	0.033	-1.811	0.070
Garrido et al. 2013	0.408	0.294	0.087	-0.169	0.986	1.387	0.165
Gharaeipour et al. 2012	0.622	0.310	0.096	0.014	1.231	2.006	0.045
Gomar et al. 2015	0.248	0.237	0.056	-0.216	0.712	1.047	0.295
Hodge et al. 2010	0.674	0.321	0.103	0.046	1.303	2.104	0.035
Iwata et al. 2017	0.472	0.259	0.067	-0.034	0.979	1.827	0.068
Jahshan et al. 2017	0.123	0.291	0.084	-0.447	0.692	0.422	0.673
Katsumi et al. 2019	0.839	0.309	0.096	0.233	1.445	2.713	0.007
Keefe et al. 2012	0.133	0.288	0.083	-0.431	0.697	0.461	0.645
Kidd et al. 2014	-0.491	0.360	0.130	-1.196	0.215	-1.363	0.173
Kukla et al. 2018	-0.142	0.301	0.090	-0.731	0.447	-0.474	0.636
Kurtz et al. 2007	-0.120	0.304	0.093	-0.717	0.476	-0.395	0.693
Lindenmayer et al. 2008	0.517	0.237	0.056	0.052	0.982	2.178	0.029
López-Luengo et al. 2003	0.194	0.397	0.157	-0.583	0.971	0.489	0.625
Mak et al. 2013	0.165	0.221	0.049	-0.267	0.597	0.748	0.455
McGurk et al. 2005	0.178	0.297	0.088	-0.405	0.760	0.598	0.550
McGurk et al. 2016	0.175	0.278	0.077	-0.369	0.720	0.632	0.528
Mendella et al. 2015	0.814	0.396	0.157	0.038	1.589	2.057	0.040
Moritz et al. 2013	0.370	0.177	0.031	0.023	0.716	2.093	0.036
Omiya et al. 2016	0.880	0.485	0.235	-0.071	1.831	1.813	0.070
O'Reilly et al. 2019	0.154	0.246	0.060	-0.327	0.636	0.629	0.529
Ostergaard Christensen et al. 2014	0.311	0.202	0.041	-0.085	0.707	1.541	0.123
Penadés et al. 2013	0.183	0.331	0.110	-0.466	0.832	0.553	0.580
Penadés et al. 2018	0.020	0.245	0.060	-0.460	0.501	0.082	0.935
Pontes et al. 2013	-0.123	0.462	0.213	-1.028	0.782	-0.267	0.789
Popova et al. 2014	-0.303	0.320	0.102	-0.930	0.323	-0.949	0.343
Puig et al. 2014	-0.115	0.356	0.126	-0.812	0.582	-0.323	0.747
Rass et al. 2012	-0.090	0.335	0.112	-0.747	0.567	-0.269	0.788
Royer et al. 2012	0.276	0.298	0.089	-0.309	0.861	0.926	0.355
Sartory et al. 2005	0.549	0.309	0.095	-0.056	1.154	1.780	0.075
Tan et al. 2013	0.455	0.282	0.080	-0.098	1.009	1.612	0.107
Tan et al. 2016	0.526	0.213	0.045	0.109	0.943	2.471	0.013
Tan et al. 2019	0.110	0.127	0.016	-0.139	0.360	0.868	0.385
Thomas et al. 2018	0.103	0.325	0.106	-0.534	0.739	0.316	0.752
Twamley et al. 2012	-0.019	0.297	0.088	-0.602	0.564	-0.065	0.949
Wölwer et al. 2005	-0.381	0.284	0.081	-0.937	0.175	-1.342	0.179
Wykes et al. 1999	-0.245	0.357	0.127	-0.944	0.454	-0.687	0.492
	0.200	0.037	0.001	0.128	0.271	5.446	0.000



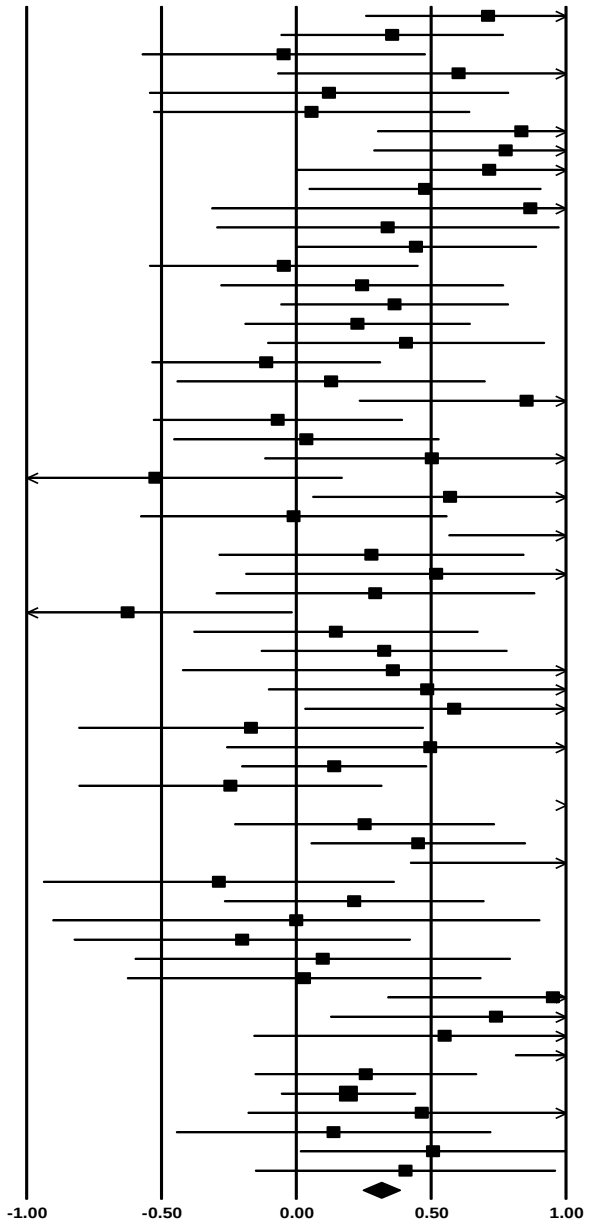
Reasoning Effects

Study name	Hedges's g	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Ahmed et al. 2015	0.594	0.230	0.053	0.143	1.044	2.582	0.010
Au et al. 2015	-0.025	0.209	0.044	-0.435	0.385	-0.119	0.905
Balzan et al. 2019	0.612	0.275	0.075	0.074	1.150	2.229	0.026
Bryce et al. 2018	-0.094	0.300	0.090	-0.681	0.493	-0.313	0.754
Bucci et al. 2013	0.068	0.262	0.068	-0.444	0.581	0.261	0.794
Cavallaro et al. 2009	0.526	0.220	0.049	0.094	0.958	2.388	0.017
Cavallo et al. 2013	0.571	0.585	0.343	-0.576	1.718	0.975	0.329
Choi et al. 2018	0.229	0.323	0.104	-0.404	0.862	0.710	0.478
d'Amato et al. 2011	-0.258	0.227	0.051	-0.702	0.186	-1.138	0.255
Dickinson et al. 2010	0.033	0.255	0.065	-0.465	0.532	0.131	0.896
Donohoe et al. 2017	-0.286	0.268	0.072	-0.812	0.240	-1.067	0.286
Fisher et al. 2014	0.436	0.216	0.047	0.012	0.860	2.014	0.044
Fisher et al. 2016	-0.103	0.213	0.045	-0.521	0.314	-0.484	0.628
Flszdon et al. 2016	0.955	0.273	0.075	0.420	1.491	3.494	0.000
Garcia-Fernadez et al. 2019	-0.280	0.218	0.047	-0.707	0.146	-1.288	0.198
Garrido et al. 2013	0.683	0.300	0.090	0.095	1.270	2.278	0.023
Gharaeipour et al. 2012	0.213	0.304	0.092	-0.382	0.808	0.702	0.483
Gomar et al. 2015	-0.196	0.236	0.056	-0.659	0.268	-0.827	0.408
Greig et al. 2007	-0.280	0.253	0.064	-0.775	0.215	-1.110	0.267
Hodge et al. 2010	1.092	0.335	0.112	0.436	1.747	3.263	0.001
Iwata et al. 2017	0.448	0.258	0.067	-0.058	0.954	1.734	0.083
Jahshan et al. 2019	0.007	0.290	0.084	-0.562	0.576	0.024	0.981
Katsumi et al. 2019	1.672	0.346	0.119	0.994	2.349	4.837	0.000
Keefe et al. 2012	0.500	0.292	0.085	-0.072	1.072	1.712	0.087
Kidd et al. 2014	-0.332	0.357	0.127	-1.032	0.367	-0.931	0.352
Kukla et al. 2018	0.197	0.301	0.091	-0.393	0.787	0.655	0.512
Kurtz et al. 2015	-0.097	0.279	0.078	-0.643	0.450	-0.347	0.728
Kurtz et al. 2007	0.000	0.304	0.093	-0.596	0.596	0.000	1.000
Lindemeyer et al. 2008	0.292	0.228	0.052	-0.155	0.738	1.281	0.200
López-Luengo et al. 2003	0.284	0.398	0.158	-0.495	1.064	0.715	0.475
Lu et al. 2012	0.687	0.185	0.034	0.324	1.050	3.709	0.000
McGurk et al. 2005	0.099	0.297	0.088	-0.482	0.680	0.334	0.738
McGurk et al. 2016	-0.042	0.277	0.077	-0.585	0.501	-0.150	0.880
Mendella et al. 2015	0.386	0.383	0.147	-0.365	1.138	1.008	0.314
O'Reilly et al. 2019	0.080	0.245	0.060	-0.401	0.560	0.324	0.746
Omiya et al. 2016	-0.194	0.462	0.214	-1.100	0.713	-0.419	0.675
Ostergaard Christensen et al. 2014	0.225	0.201	0.041	-0.169	0.620	1.119	0.263
Penadés et al. 2013	0.312	0.333	0.111	-0.340	0.964	0.938	0.348
Pontes et al. 2013	0.162	0.462	0.213	-0.744	1.067	0.350	0.727
Popova et al. 2014	0.460	0.322	0.104	-0.171	1.091	1.429	0.153
Reeder et al. 2017	0.380	0.216	0.047	-0.043	0.803	1.762	0.078
Royer et al. 2012	0.704	0.306	0.094	0.105	1.304	2.303	0.021
Tan et al. 2019	0.404	0.128	0.016	0.152	0.655	3.149	0.002
Tan et al. 2016	0.575	0.213	0.046	0.157	0.993	2.695	0.007
Thomas et al. 2018	0.255	0.326	0.106	-0.384	0.894	0.782	0.434
Twamley et al. 2012	0.519	0.308	0.095	-0.085	1.124	1.684	0.092
Vauth et al. 2005	0.582	0.253	0.064	0.087	1.077	2.304	0.021
Wykes and Newton et al. 2007	0.649	0.355	0.126	-0.046	1.345	1.831	0.067
Wykes et al. 1999	0.485	0.361	0.130	-0.222	1.192	1.345	0.179
Wykes et al. 2007	-0.043	0.230	0.053	-0.494	0.408	-0.187	0.852
	0.270	0.037	0.001	0.197	0.342	7.311	0.000



Verbal Learning and Memory Effects

Study name	Hedges's g	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Ahmed et al. 2015	0.711	0.232	0.054	0.257	1.166	3.066	0.002
Au et al. 2015	0.356	0.211	0.044	-0.057	0.769	1.688	0.091
Balzan et al. 2019	-0.047	0.268	0.072	-0.572	0.479	-0.174	0.862
Bellucci et al. 2002	0.602	0.343	0.117	-0.070	1.274	1.757	0.079
Benedict et al. 1994	0.121	0.340	0.116	-0.545	0.788	0.357	0.721
Bryce et al. 2018	0.057	0.300	0.090	-0.530	0.644	0.189	0.850
Bucci et al. 2013	0.835	0.273	0.074	0.300	1.369	3.060	0.002
Burda et al. 1994	0.776	0.250	0.063	0.286	1.266	3.105	0.002
Byrne et al. 2013	0.715	0.363	0.132	0.004	1.427	1.970	0.049
Cavallaro et al. 2009	0.477	0.220	0.048	0.047	0.908	2.173	0.030
Cavallo et al. 2013	0.868	0.603	0.364	-0.314	2.051	1.439	0.150
Choi et al. 2018	0.339	0.324	0.105	-0.296	0.975	1.046	0.295
d'Amato et al. 2011	0.444	0.228	0.052	-0.004	0.892	1.943	0.052
Dickinson et al. 2010	-0.046	0.255	0.065	-0.545	0.453	-0.182	0.856
Donohoe et al. 2017	0.244	0.268	0.072	-0.281	0.769	0.911	0.362
Fisher et al. 2014	0.365	0.216	0.046	-0.058	0.787	1.692	0.091
Fisher et al. 2016	0.227	0.214	0.046	-0.191	0.646	1.064	0.287
Fiszdon et al. 2016	0.407	0.262	0.069	-0.107	0.921	1.552	0.121
Garcia-Fernadez et al. 2019	-0.112	0.217	0.047	-0.536	0.313	-0.515	0.607
Garrido et al. 2013	0.129	0.292	0.085	-0.443	0.701	0.442	0.658
Gharaeipour et al. 2012	0.854	0.317	0.100	0.233	1.475	2.696	0.007
Gomar et al. 2015	-0.068	0.236	0.056	-0.531	0.394	-0.289	0.772
Greig et al. 2007	0.037	0.251	0.063	-0.455	0.530	0.149	0.882
Hodge et al. 2010	0.503	0.317	0.100	-0.118	1.123	1.589	0.112
Holzer et al. 2014	-0.522	0.353	0.125	-1.215	0.171	-1.477	0.140
Iwata et al. 2017	0.570	0.260	0.068	0.060	1.080	2.192	0.028
Jahshan et al. 2019	-0.009	0.290	0.084	-0.578	0.560	-0.032	0.974
Katsumi et al. 2019	1.197	0.322	0.104	0.565	1.829	3.712	0.000
Keefe et al. 2012	0.279	0.289	0.083	-0.287	0.845	0.966	0.334
Kidd et al. 2014	0.519	0.361	0.130	-0.188	1.225	1.439	0.150
Kukla et al. 2018	0.293	0.302	0.091	-0.298	0.885	0.972	0.331
Kurtz et al. 2007	-0.625	0.312	0.097	-1.236	-0.014	-2.006	0.045
Kurtz et al. 2015	0.147	0.269	0.073	-0.381	0.675	0.546	0.585
Lindenmeyer et al. 2008	0.326	0.233	0.054	-0.131	0.783	1.399	0.162
López-Luengo et al. 2003	0.358	0.399	0.159	-0.423	1.140	0.898	0.369
McGurk et al. 2005	0.486	0.301	0.091	-0.104	1.075	1.614	0.106
McGurk et al. 2016	0.586	0.283	0.080	0.031	1.140	2.068	0.039
Medalia et al. 2000	-0.168	0.327	0.107	-0.808	0.472	-0.514	0.607
Mendella et al. 2015	0.497	0.386	0.149	-0.259	1.253	1.289	0.198
Moritz et al. 2013	0.141	0.175	0.031	-0.203	0.484	0.802	0.423
Moritz et al. 2015	-0.244	0.287	0.082	-0.807	0.318	-0.851	0.395
Omiya et al. 2016	2.153	0.591	0.349	0.995	3.312	3.645	0.000
O'Reilly et al. 2019	0.253	0.246	0.061	-0.229	0.736	1.029	0.303
Ostergaard Christensen et al. 2014	0.452	0.203	0.041	0.054	0.850	2.225	0.026
Penadés et al. 2006	1.144	0.368	0.135	0.423	1.865	3.109	0.002
Penadés et al. 2013	-0.287	0.332	0.110	-0.938	0.364	-0.864	0.388
Penadés et al. 2018	0.215	0.246	0.060	-0.267	0.697	0.874	0.382
Pontes et al. 2013	0.000	0.461	0.213	-0.904	0.904	0.000	1.000
Popova et al. 2014	-0.201	0.318	0.101	-0.825	0.424	-0.630	0.529
Puig et al. 2014	0.099	0.356	0.126	-0.598	0.795	0.277	0.782
Rass et al. 2012	0.029	0.335	0.112	-0.627	0.686	0.087	0.931
Royer et al. 2012	0.952	0.313	0.098	0.338	1.565	3.040	0.002
Sartory et al. 2005	0.741	0.313	0.098	0.126	1.355	2.363	0.018
Silverstein et al. 2005	0.550	0.361	0.131	-0.158	1.258	1.523	0.128
Tan et al. 2013	1.425	0.313	0.098	0.811	2.038	4.553	0.000
Tan et al. 2016	0.258	0.210	0.044	-0.153	0.670	1.229	0.219
Tan et al. 2019	0.193	0.127	0.016	-0.056	0.443	1.520	0.129
Thomas et al. 2018	0.466	0.329	0.108	-0.179	1.111	1.415	0.157
Twamley et al. 2012	0.138	0.298	0.089	-0.445	0.722	0.465	0.642
Vauth et al. 2005	0.507	0.251	0.063	0.014	1.000	2.017	0.044
Wölwer et al. 2005	0.405	0.284	0.081	-0.152	0.962	1.425	0.154
	0.315	0.035	0.001	0.247	0.383	9.090	0.000

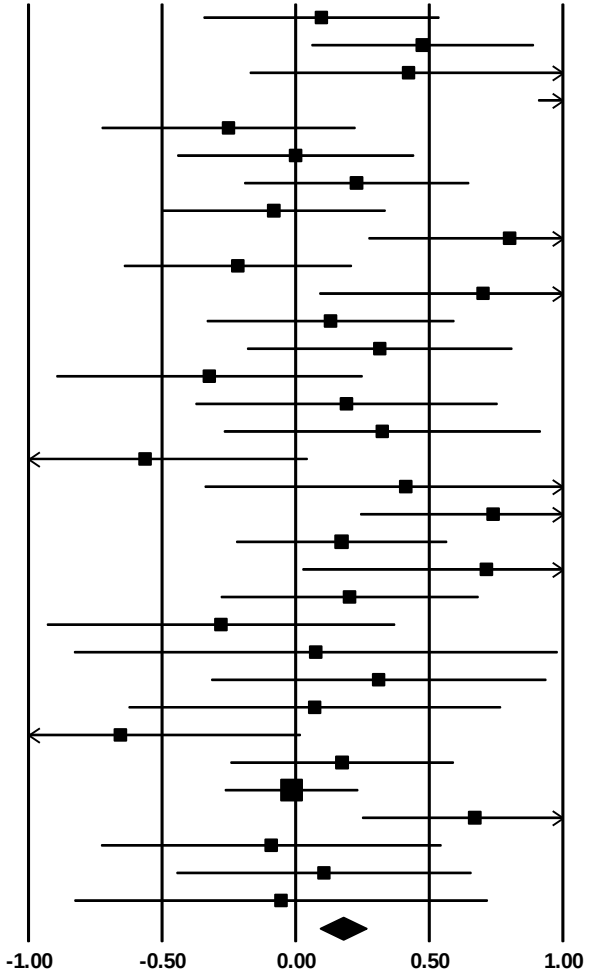


Visual Learning and Memory Effects

Study name	Hedges's g	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Ahmed et al. 2015	0.097	0.225	0.051	-0.344	0.538	0.430	0.667
Au et al. 2015	0.475	0.212	0.045	0.060	0.891	2.241	0.025
Bryce et al. 2018	0.423	0.303	0.092	-0.171	1.016	1.395	0.163
Bucci et al. 2013	1.488	0.296	0.088	0.908	2.068	5.030	0.000
Burda et al. 1994	-0.251	0.242	0.059	-0.726	0.223	-1.037	0.300
d'Amato et al. 2011	0.000	0.226	0.051	-0.442	0.442	0.000	1.000
Fisher et al. 2014	0.228	0.214	0.046	-0.192	0.649	1.064	0.287
Fisher et al. 2016	-0.081	0.213	0.045	-0.499	0.336	-0.383	0.702
Fiszdon et al. 2016	0.801	0.269	0.073	0.273	1.329	2.973	0.003
Garcia-Fernadez et al. 2019	-0.216	0.217	0.047	-0.642	0.210	-0.995	0.320
Gharaeipour et al. 2012	0.701	0.312	0.098	0.089	1.314	2.246	0.025
Gomar et al. 2015	0.131	0.236	0.056	-0.332	0.594	0.553	0.580
Greig et al. 2007	0.315	0.253	0.064	-0.181	0.811	1.245	0.213
Jahshan et al. 2019	-0.323	0.292	0.085	-0.895	0.250	-1.105	0.269
Keefe et al. 2012	0.190	0.288	0.083	-0.374	0.755	0.661	0.509
Kukla et al. 2018	0.324	0.302	0.091	-0.268	0.917	1.074	0.283
Kurtz et al. 2007	-0.563	0.310	0.096	-1.171	0.045	-1.815	0.070
Mendella et al. 2015	0.412	0.384	0.147	-0.340	1.165	1.074	0.283
O'Reilly et al. 2019	0.739	0.254	0.064	0.242	1.236	2.916	0.004
Ostergaard Christensen et al. 2014	0.172	0.201	0.040	-0.222	0.566	0.856	0.392
Penadés et al. 2006	0.714	0.351	0.123	0.026	1.402	2.034	0.042
Penadés et al. 2018	0.202	0.246	0.060	-0.280	0.684	0.822	0.411
Penadés et al. 2013	-0.279	0.332	0.110	-0.930	0.372	-0.841	0.400
Pontes et al. 2013	0.076	0.461	0.213	-0.829	0.980	0.164	0.870
Popova et al. 2014	0.311	0.320	0.102	-0.316	0.937	0.973	0.331
Puig et al. 2014	0.071	0.355	0.126	-0.625	0.768	0.201	0.841
Rass et al. 2012	-0.656	0.344	0.118	-1.331	0.019	-1.906	0.057
Reeder et al. 2017	0.174	0.213	0.045	-0.243	0.591	0.817	0.414
Tan et al. 2019	-0.015	0.127	0.016	-0.264	0.234	-0.119	0.905
Tan et al. 2016	0.670	0.215	0.046	0.249	1.092	3.119	0.002
Thomas et al. 2018	-0.091	0.325	0.106	-0.728	0.545	-0.281	0.779
Wölwer et al. 2005	0.106	0.281	0.079	-0.446	0.657	0.376	0.707
Wykes et al. 1999	-0.055	0.394	0.155	-0.827	0.718	-0.139	0.890
	0.177	0.044	0.002	0.091	0.264	4.021	0.000

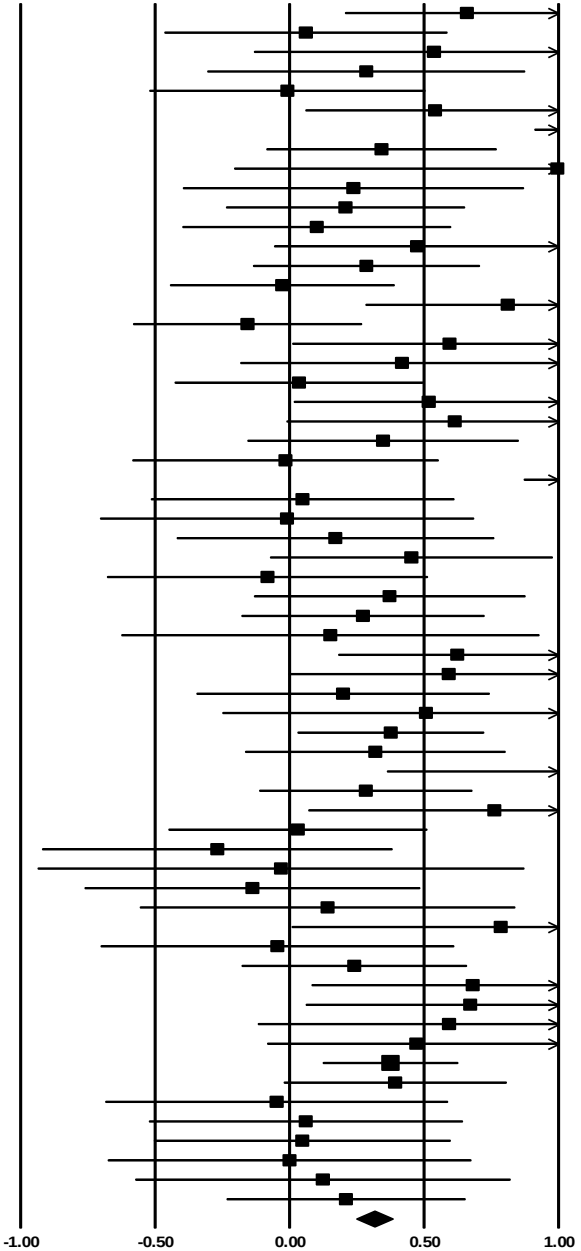
Statistics for each study

Hedges's g and 95% CI



Working Memory Effects

Study name	Hedges's g	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Ahmed et al. 2015	0.659	0.231	0.053	0.207	1.112	2.855	0.004
Balzan et al. 2019	0.061	0.268	0.072	-0.465	0.587	0.226	0.821
Bellucci et al. 2002	0.537	0.341	0.116	-0.132	1.206	1.574	0.115
Bryce et al. 2018	0.285	0.301	0.091	-0.305	0.875	0.947	0.344
Bucci et al. 2013	-0.008	0.262	0.068	-0.521	0.505	-0.031	0.975
Burda et al. 1994	0.541	0.246	0.060	0.060	1.022	2.203	0.028
Byrne et al. 2013	1.723	0.414	0.171	0.911	2.534	4.161	0.000
Cavallaro et al. 2009	0.342	0.218	0.048	-0.086	0.770	1.567	0.117
Cavallo et al. 2013	0.996	0.613	0.376	-0.206	2.198	1.624	0.104
Choi et al. 2018	0.237	0.323	0.104	-0.396	0.871	0.735	0.462
d'Amato et al. 2011	0.208	0.226	0.051	-0.236	0.651	0.919	0.358
Dickinson et al. 2010	0.101	0.255	0.065	-0.398	0.600	0.398	0.691
Donohoe et al. 2017	0.474	0.271	0.073	-0.057	1.005	1.750	0.080
Fisher et al. 2014	0.286	0.215	0.046	-0.135	0.707	1.331	0.183
Fisher et al. 2016	-0.027	0.213	0.045	-0.444	0.390	-0.127	0.899
Flszdon et al. 2016	0.811	0.270	0.073	0.283	1.340	3.009	0.003
Garcia-Fernadez et al. 2019	-0.156	0.217	0.047	-0.581	0.269	-0.720	0.471
Garrido et al. 2013	0.595	0.298	0.089	0.011	1.178	1.997	0.046
Gharaeipour et al. 2012	0.418	0.306	0.094	-0.182	1.018	1.365	0.172
Gomar et al. 2015	0.035	0.236	0.056	-0.427	0.498	0.150	0.881
Greig et al. 2007	0.518	0.256	0.065	0.017	1.019	2.025	0.043
Hodge et al. 2010	0.614	0.319	0.102	-0.011	1.239	1.925	0.054
Iwata et al. 2017	0.348	0.257	0.066	-0.156	0.851	1.353	0.176
Jahshan et al. 2019	-0.015	0.290	0.084	-0.584	0.554	-0.052	0.958
Katsumi et al. 2019	1.534	0.338	0.114	0.871	2.197	4.535	0.000
Keefe et al. 2012	0.048	0.287	0.083	-0.515	0.612	0.168	0.866
Kidd et al. 2014	-0.009	0.354	0.126	-0.704	0.685	-0.026	0.979
Kukla et al. 2018	0.171	0.301	0.090	-0.419	0.760	0.568	0.570
Kurtz et al. 2015	0.453	0.268	0.072	-0.072	0.978	1.692	0.091
Kurtz et al. 2007	-0.082	0.304	0.093	-0.678	0.515	-0.269	0.788
Lee 2013	0.372	0.257	0.066	-0.132	0.876	1.448	0.147
Lindenmayer et al. 2008	0.273	0.230	0.053	-0.178	0.724	1.186	0.236
López-Luengo et al. 2003	0.151	0.396	0.157	-0.625	0.928	0.382	0.702
Mak et al. 2013	0.624	0.226	0.051	0.182	1.066	2.766	0.006
McGurk et al. 2005	0.592	0.303	0.092	-0.002	1.186	1.953	0.051
McGurk et al. 2016	0.199	0.278	0.077	-0.345	0.743	0.716	0.474
Mendella et al. 2015	0.507	0.386	0.149	-0.250	1.264	1.313	0.189
Mortiz et al. 2013	0.376	0.177	0.031	0.030	0.723	2.129	0.033
O'Reilly et al. 2019	0.319	0.247	0.061	-0.164	0.803	1.294	0.196
Omiya et al. 2016	1.378	0.518	0.269	0.362	2.394	2.659	0.008
Ostergaard et al. 2014	0.283	0.202	0.041	-0.112	0.679	1.406	0.160
Penadés et al. 2006	0.761	0.353	0.124	0.071	1.452	2.160	0.031
Penadés et al. 2018	0.031	0.245	0.060	-0.450	0.511	0.126	0.899
Penadés et al. 2013	-0.269	0.332	0.110	-0.919	0.382	-0.809	0.419
Pontes et al. 2013	-0.032	0.461	0.213	-0.936	0.872	-0.069	0.945
Popova et al. 2014	-0.138	0.318	0.101	-0.761	0.485	-0.434	0.664
Puig et al. 2014	0.141	0.356	0.127	-0.556	0.839	0.397	0.691
Ramsay et al. 2017	0.785	0.396	0.157	0.009	1.562	1.982	0.047
Rass et al. 2012	-0.045	0.335	0.112	-0.702	0.611	-0.135	0.892
Reeder et al. 2017	0.241	0.213	0.046	-0.177	0.659	1.129	0.259
Royer et al. 2012	0.681	0.305	0.093	0.083	1.280	2.232	0.026
Sartory et al. 2005	0.672	0.312	0.097	0.061	1.282	2.156	0.031
Silverstein et al. 2005	0.593	0.362	0.131	-0.117	1.303	1.636	0.102
Tan et al. 2013	0.471	0.283	0.080	-0.083	1.025	1.667	0.095
Tan et al. 2019	0.375	0.128	0.016	0.124	0.626	2.930	0.003
Tan et al. 2016	0.393	0.211	0.045	-0.021	0.806	1.860	0.063
Thomas et al. 2018	-0.048	0.325	0.105	-0.684	0.589	-0.147	0.883
Twamley et al. 2012	0.061	0.297	0.088	-0.522	0.643	0.204	0.839
Wölwer et al. 2005	0.047	0.281	0.079	-0.504	0.599	0.169	0.866
Wykes and Newton et al. 2007	0.000	0.345	0.119	-0.675	0.675	0.000	1.000
Wykes et al. 1999	0.124	0.356	0.126	-0.573	0.821	0.349	0.727
Wykes et al. 2007	0.210	0.226	0.051	-0.234	0.654	0.928	0.353
	0.315	0.034	0.001	0.248	0.382	9.247	0.000

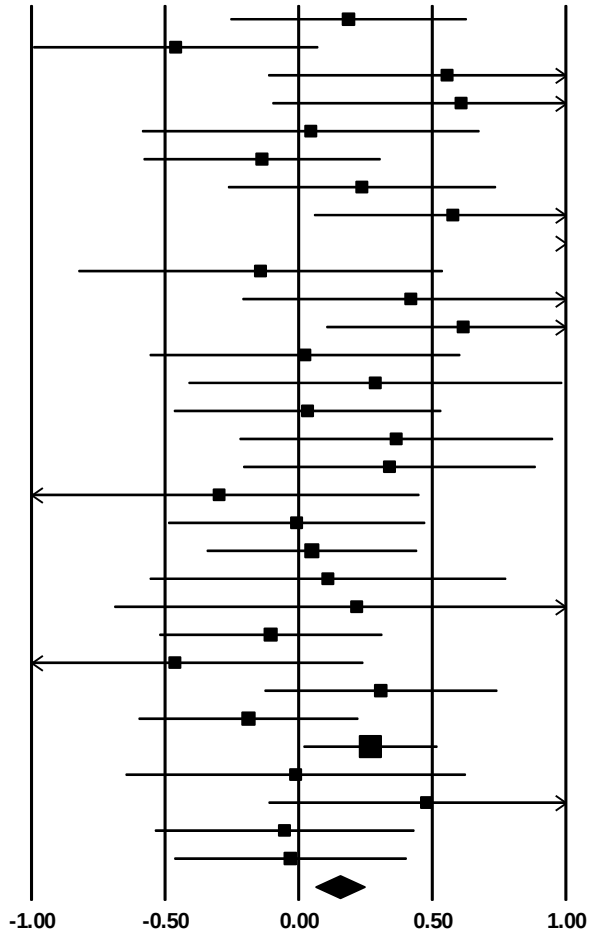


Negative Symptom Effects

Study name	Hedges's g	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Ahmed et al. 2015	0.187	0.225	0.051	-0.255	0.628	0.829	0.407
Balzan et al. 2019	-0.460	0.272	0.074	-0.993	0.073	-1.692	0.091
Bellucci et al. 2002	0.556	0.342	0.117	-0.114	1.225	1.627	0.104
Byrne et al. 2013	0.608	0.360	0.130	-0.097	1.313	1.689	0.091
Choi et al. 2018	0.045	0.322	0.104	-0.585	0.676	0.141	0.888
d'Amato et al. 2011	-0.137	0.226	0.051	-0.580	0.306	-0.606	0.544
Dickinson et al. 2010	0.237	0.255	0.065	-0.264	0.737	0.928	0.354
Fiszdon et al. 2016	0.577	0.265	0.070	0.058	1.096	2.180	0.029
Gharaeipour et al. 2012	1.791	0.360	0.130	1.085	2.497	4.970	0.000
Holzer et al. 2014	-0.142	0.348	0.121	-0.824	0.539	-0.410	0.682
Horan et al. 2011	0.420	0.321	0.103	-0.210	1.049	1.306	0.192
Iwata et al. 2017	0.616	0.261	0.068	0.104	1.128	2.360	0.018
Katsumi et al. 2019	0.024	0.296	0.088	-0.556	0.604	0.081	0.936
Kidd et al. 2014	0.287	0.356	0.127	-0.411	0.986	0.806	0.420
Lee 2013	0.034	0.255	0.065	-0.466	0.533	0.132	0.895
McGurk et al. 2005	0.365	0.299	0.089	-0.221	0.951	1.222	0.222
McGurk et al. 2016	0.340	0.279	0.078	-0.207	0.887	1.218	0.223
Mendella et al. 2015	-0.297	0.382	0.146	-1.046	0.451	-0.779	0.436
O'Reilly et al. 2019	-0.007	0.245	0.060	-0.488	0.473	-0.030	0.976
Ostergaard Christensen et al. 2014	0.050	0.201	0.040	-0.344	0.443	0.247	0.805
Penadés et al. 2006	0.110	0.340	0.116	-0.557	0.776	0.322	0.747
Pontes et al. 2013	0.217	0.463	0.214	-0.690	1.124	0.469	0.639
Reeder et al. 2017	-0.104	0.213	0.045	-0.521	0.313	-0.490	0.624
Silverstein et al. 2005	-0.463	0.359	0.129	-1.167	0.241	-1.289	0.197
Silverstein et al. 2014	0.308	0.222	0.049	-0.127	0.743	1.387	0.165
Tan et al. 2016	-0.188	0.210	0.044	-0.598	0.223	-0.896	0.370
Tan et al. 2019	0.268	0.128	0.016	0.018	0.519	2.105	0.035
Thomas et al. 2018	-0.011	0.325	0.105	-0.647	0.625	-0.034	0.973
Twamley et al. 2012	0.479	0.302	0.091	-0.112	1.070	1.588	0.112
Vauth et al. 2005	-0.053	0.248	0.061	-0.538	0.433	-0.212	0.832
Wykes et al. 2007	-0.031	0.222	0.049	-0.465	0.404	-0.138	0.890
	0.154	0.047	0.002	0.063	0.246	3.310	0.001

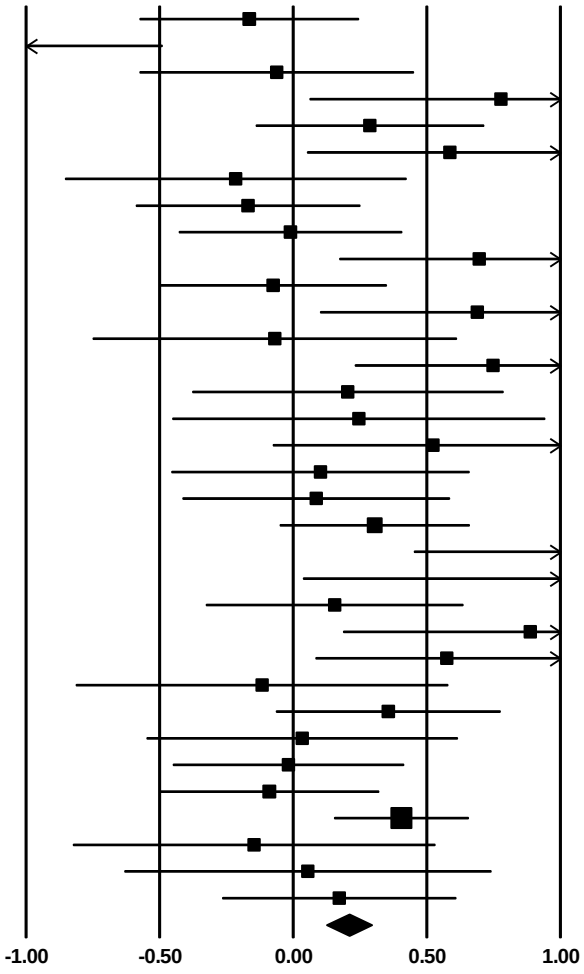
Statistics for each study

Hedges's g and 95% CI



Functional Outcome Effects

Study name	Hedges's g	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Au et al. 2015	-0.164	0.209	0.044	-0.575	0.246	-0.785	0.432
Bryce et al. 2018	-1.122	0.323	0.104	-1.755	-0.489	-3.474	0.001
Bucci et al. 2013	-0.062	0.262	0.068	-0.575	0.451	-0.236	0.814
Byrne et al. 2013	0.777	0.365	0.133	0.062	1.493	2.130	0.033
Cavallaro et al. 2009	0.287	0.218	0.047	-0.139	0.714	1.320	0.187
Donohoe et al. 2017	0.587	0.273	0.074	0.052	1.121	2.151	0.031
Drake et al. 2014	-0.215	0.326	0.106	-0.854	0.424	-0.660	0.509
Fisher et al. 2014	-0.169	0.214	0.046	-0.588	0.251	-0.788	0.431
Fisher et al. 2016	-0.010	0.213	0.045	-0.427	0.407	-0.048	0.962
Fiszdon et al. 2016	0.696	0.267	0.071	0.173	1.220	2.608	0.009
Garcia-Fernadez et al. 2019	-0.075	0.217	0.047	-0.499	0.350	-0.345	0.730
Garrido et al. 2013	0.689	0.300	0.090	0.101	1.277	2.298	0.022
Holzer et al. 2014	-0.069	0.347	0.121	-0.750	0.612	-0.198	0.843
Iwata et al. 2017	0.748	0.264	0.070	0.231	1.266	2.835	0.005
Katsumi et al. 2019	0.204	0.297	0.088	-0.377	0.786	0.689	0.491
Kidd et al. 2014	0.246	0.356	0.127	-0.452	0.943	0.691	0.490
Kukla et al. 2018	0.523	0.305	0.093	-0.075	1.122	1.714	0.087
Kurtz et al. 2015	0.102	0.284	0.081	-0.455	0.660	0.359	0.719
Lee 2013	0.086	0.255	0.065	-0.413	0.586	0.338	0.735
Lu et al. 2012	0.305	0.181	0.033	-0.050	0.660	1.686	0.092
McGurk et al. 2005	1.075	0.318	0.101	0.452	1.698	3.383	0.001
Omiya et al. 2016	1.002	0.492	0.242	0.037	1.966	2.035	0.042
O'Reilly et al. 2019	0.155	0.246	0.060	-0.326	0.637	0.633	0.527
Penadés et al. 2006	0.887	0.357	0.127	0.188	1.587	2.486	0.013
Penadés et al. 2018	0.575	0.250	0.063	0.084	1.065	2.297	0.022
Puig et al. 2014	-0.116	0.356	0.126	-0.813	0.581	-0.327	0.744
Reeder et al. 2017	0.356	0.214	0.046	-0.064	0.776	1.663	0.096
Royer et al. 2012	0.034	0.297	0.088	-0.548	0.616	0.114	0.909
Silverstein et al. 2014	-0.017	0.221	0.049	-0.450	0.415	-0.079	0.937
Tan et al. 2016	-0.089	0.209	0.044	-0.499	0.321	-0.426	0.670
Tan et al. 2019	0.405	0.128	0.016	0.154	0.656	3.159	0.002
Wykes and Newton et al. 2007	-0.146	0.346	0.120	-0.824	0.532	-0.423	0.673
Wykes et al. 1999	0.055	0.350	0.123	-0.631	0.741	0.157	0.875
Wykes et al. 2007	0.173	0.223	0.050	-0.265	0.610	0.773	0.440
	0.209	0.043	0.002	0.124	0.293	4.833	0.000



Supplement 5: References of Included Studies

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