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Appendix 1. References of studies included in systematic meta-analysis

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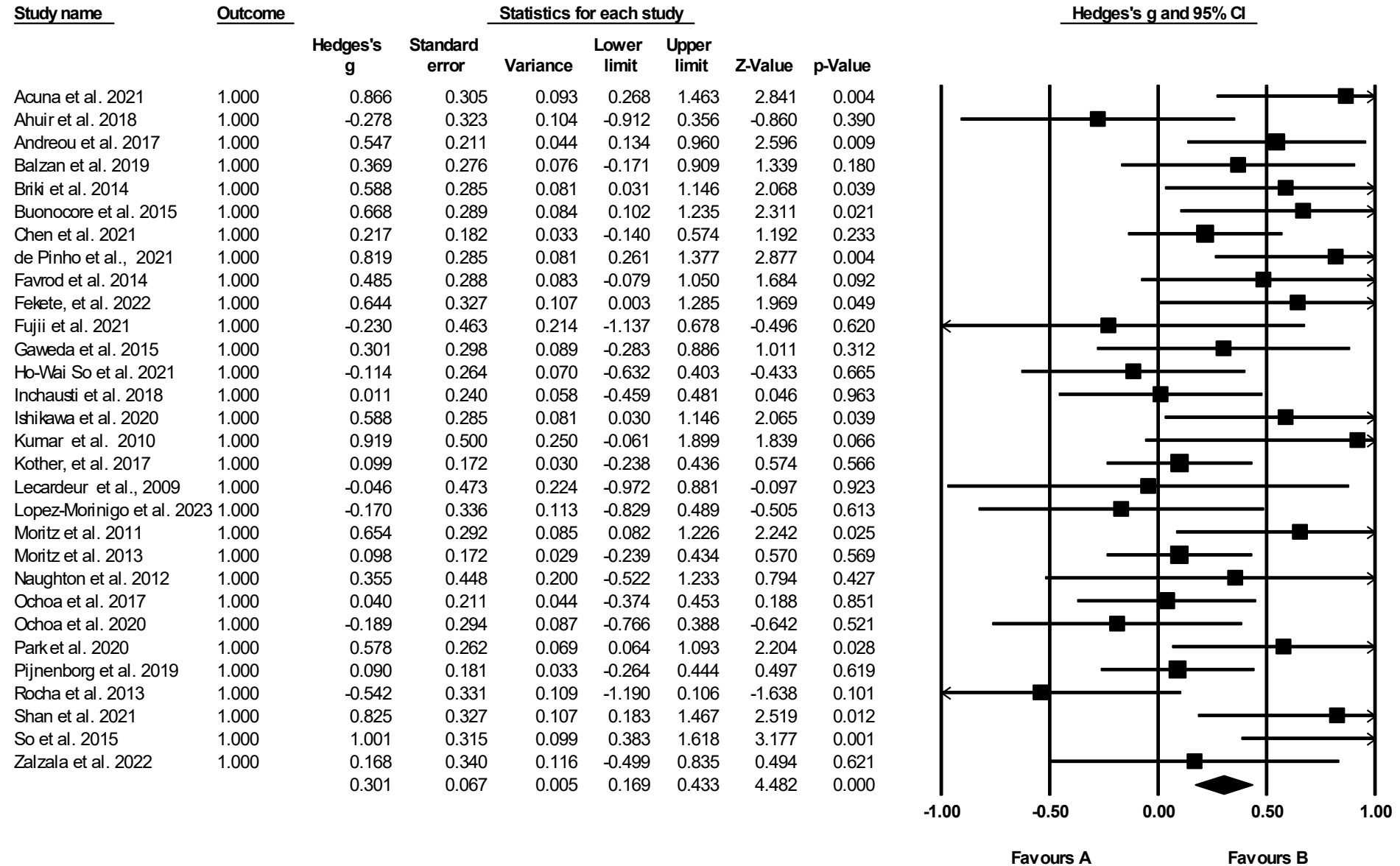
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Appendix 2. Measures used in meta-analysis organized by domain.

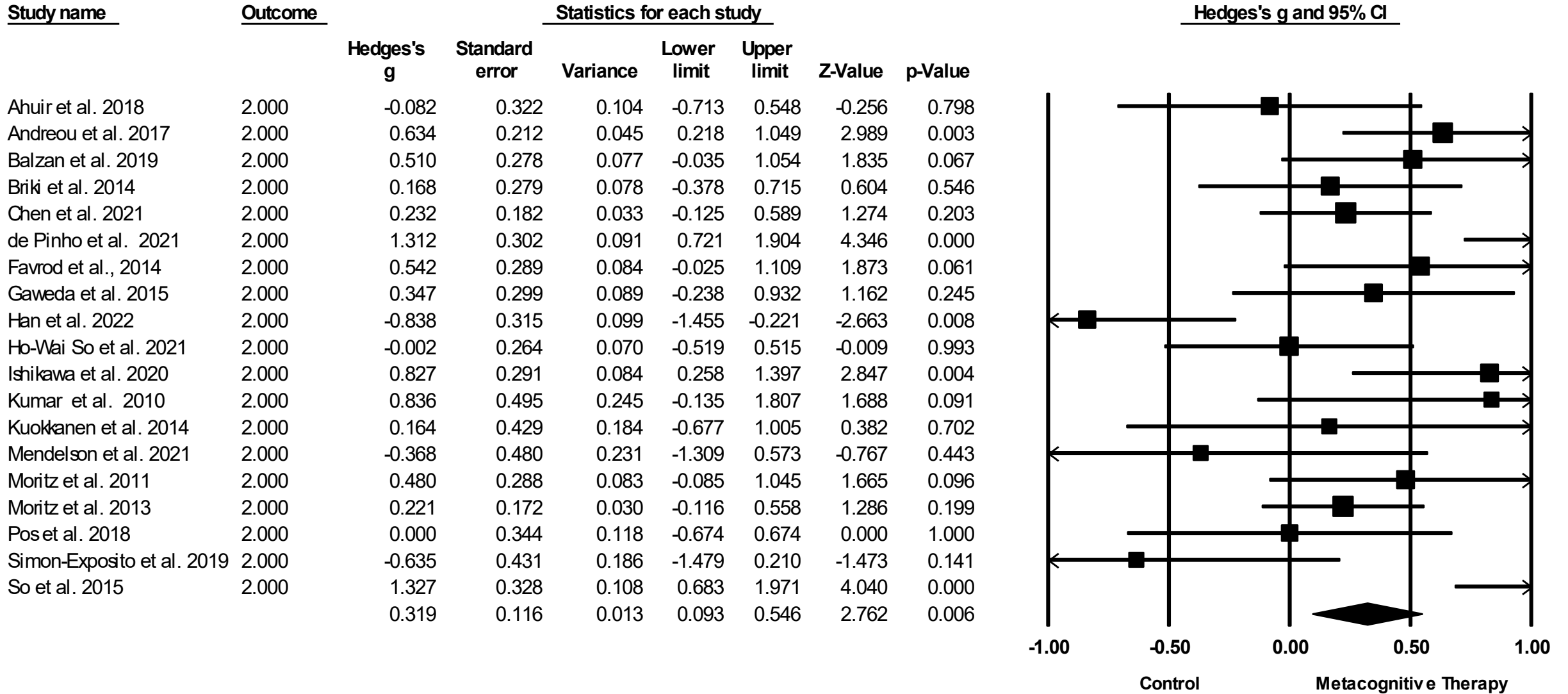
Number in parentheses indicates the number of times a measure was represented in each specific domain.

<p><u>Positive Symptoms</u> Positive and Negative Symptom Scale (PANSS) Positive (26) Psychotic Symptom Rating Scale (PSYRATS) Total (2) Scale for the Assessment of Positive Symptoms (SAPS) (1) Brief Psychiatric Rating Scale (BPRS) Positive (1)</p>	<p><u>Delusions</u> PANSS Item P1 (4) PSYRATS Delusions (13) Brown Assessment of Beliefs Scale (BABS) Total (1) Experience Sampling Method DC (1)</p>	<p><u>Hallucinations</u> PANSS Item P3 (2) PSYRATS Hallucinations (7) Launay-Slade Hallucinations Scale-Revised (LSHS R) (1)</p>	<p><u>Cognitive Bias</u> Fish Task Draws-to-decision (6) Bias Against Disconfirmatory Evidence (BADE)-I (1) Cognitive Bias Questionnaire (CBQ) T (2) Cognitive Bias Questionnaire Psychosis (CBQp) (1) Internal, Personal, and Situational Attributions Test (IPSAQ) PB (1) Beads Task (BT DTD) Draws-to-Decision (2) Belief Flexibility (1)</p>
<p><u>Negative Symptoms</u> PANSS Negative Symptoms (19) SANS Negative Symptoms (1) BPRS Negative Symptoms (2)</p>	<p><u>Cognitive Insight</u> Beck Cognitive Insight Scale (BCIS) Self Reflectiveness (1) BCIS Self-Certainty (5) BCIS Sum (10)</p>	<p><u>Function</u> Personal and Social Performance Scale (PSP) Total (4) Quality of Life Scale (QLS) SC (1) Global Assessment of Function (GAF) Total (6) Residential Competency Scale (RCS) (1) Life Skills profile (LSP) Total (1) Work Behavior Inventory (WBI) Total (1) World Health Organization Quality-of-Life Scale (WHOQOL)-R (1)</p>	<p><u>Depression</u> Calgary Depression Severity Score (CDSS; 4) Beck Depression Inventory-II (BDI-II; 2) Temperament and Character Inventory (TCI) Worry and Anxiety (1) Quick Inventory of Depressive Symptomatology (QIDS) SR (1) Center for Epidemiological Studies Depression Scale (1)</p>
<p><u>Neurocognitive Flexibility</u> Brief Assessment of Cognition (BACS) Problem Solving (3) Wisconsin Card Sorting Test (WCST) Total Errors (1) WCST Perseverative Errors (1) Trailmaking Test B (TMT B; 4) NAB Mazes (1)</p>	<p><u>Social Cognition</u> Reading-the-Mind-in-the-Eyes Test (REMT) Total (3) Hinting Task (4) False Beliefs Test (2) Davos Assessment of Cognitive Bias Scale (DACOBS) TOM (1) DACOBS Total (1) Meyer-Salovey-Caruso Emotion Intelligence Test (MSCEIT) (1)</p>	<p><u>Clinical Insight</u> Scale for the Assessment of Unawareness of Mental Disorder (SUMD) AI (1) SUMD SAI (1) SUMD T (1) QI (1) Scale for the Assessment of Insight (SAI) E T (1) PANSS item G12 (3) Schedule for Assessment of Insight (SAI) Total (1)</p>	

Positive Symptoms

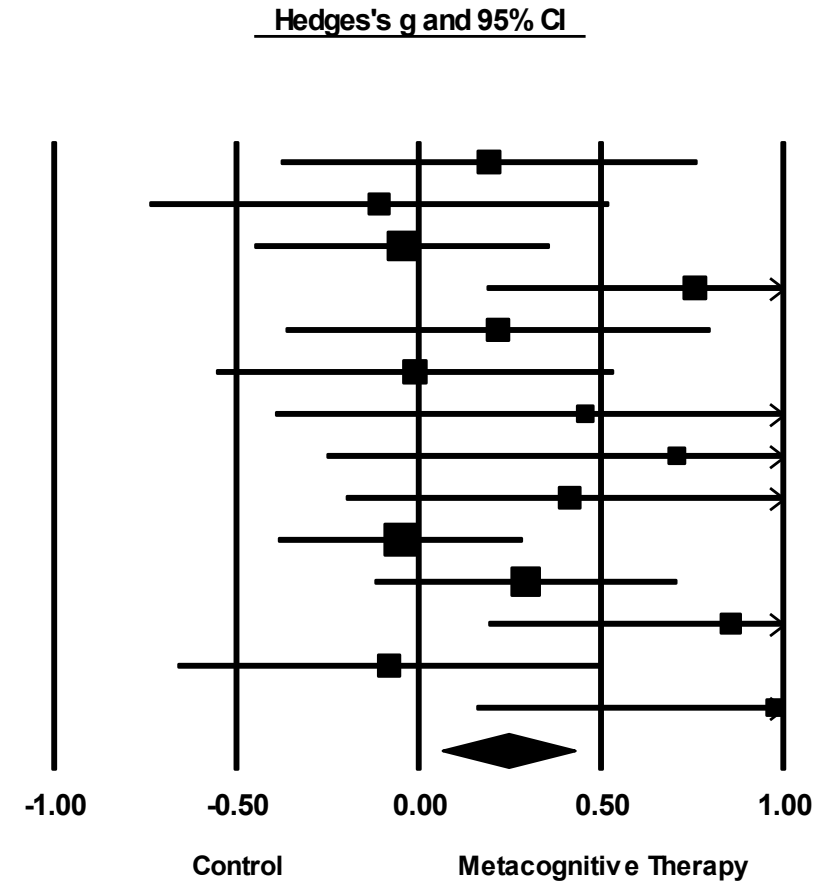


Delusions

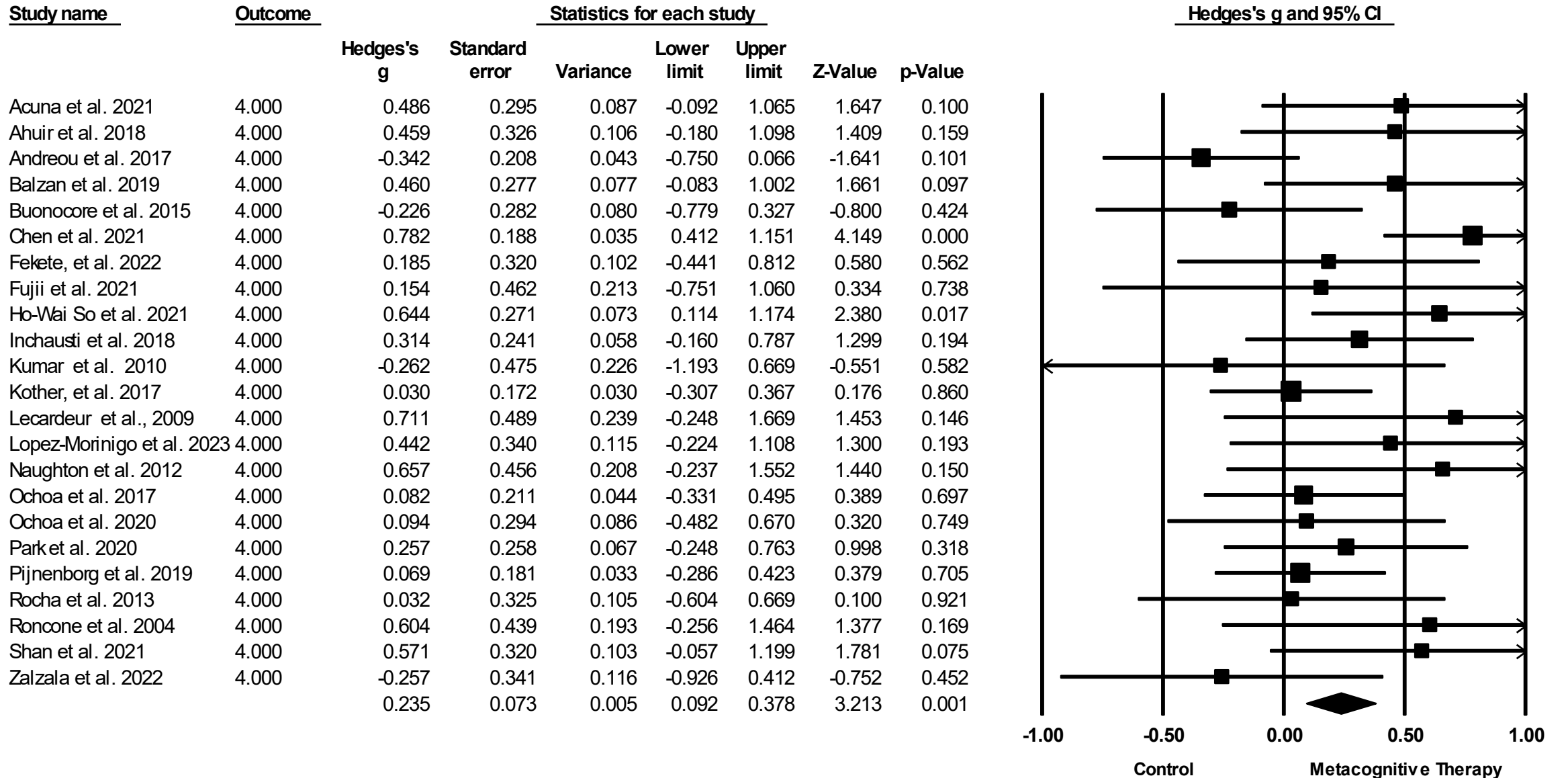


Cognitive Bias

Study name	Outcome	Statistics for each study						
		Hedges's g	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Acuna et al. 2021	5.000	0.193	0.292	0.085	-0.378	0.765	0.663	0.508
Ahuir et al. 2018	5.000	-0.108	0.322	0.104	-0.739	0.523	-0.336	0.737
Andreou et al. 2017	5.000	-0.045	0.207	0.043	-0.451	0.360	-0.220	0.826
Buonocore et al. 2015	5.000	0.758	0.291	0.085	0.186	1.329	2.600	0.009
Gaweda et al. 2015	5.000	0.218	0.297	0.088	-0.365	0.800	0.732	0.464
Ishikawa et al. 2020	5.000	-0.010	0.279	0.078	-0.556	0.536	-0.036	0.971
Kuokkanen et al. 2014	5.000	0.457	0.434	0.189	-0.394	1.308	1.052	0.293
Mendelson et al. 2021	5.000	0.708	0.491	0.241	-0.253	1.670	1.444	0.149
Moritz et al. 2015	5.000	0.414	0.313	0.098	-0.200	1.028	1.321	0.186
Moritz et al. 2013	5.000	-0.050	0.172	0.029	-0.387	0.286	-0.293	0.769
Ochoa et al. 2017	5.000	0.294	0.212	0.045	-0.122	0.709	1.386	0.166
Rocha et al. 2013	5.000	0.856	0.340	0.115	0.191	1.522	2.522	0.012
So et al. 2015	5.000	-0.081	0.297	0.088	-0.662	0.500	-0.273	0.785
Waller et al., 2015	5.000	0.977	0.418	0.174	0.158	1.795	2.339	0.019
		0.245	0.093	0.009	0.063	0.426	2.638	0.008

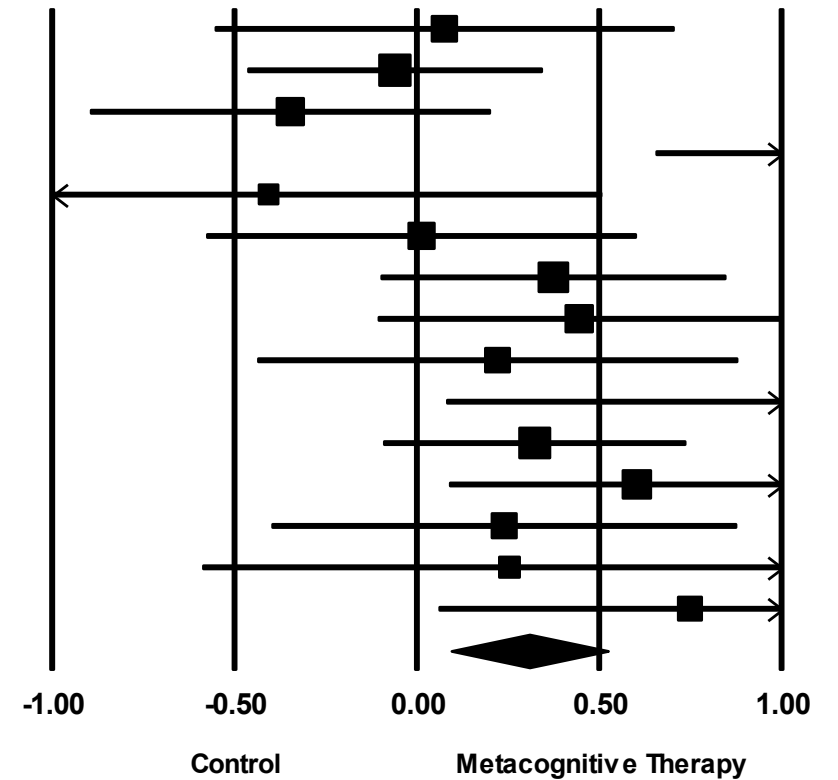


Negative Symptoms



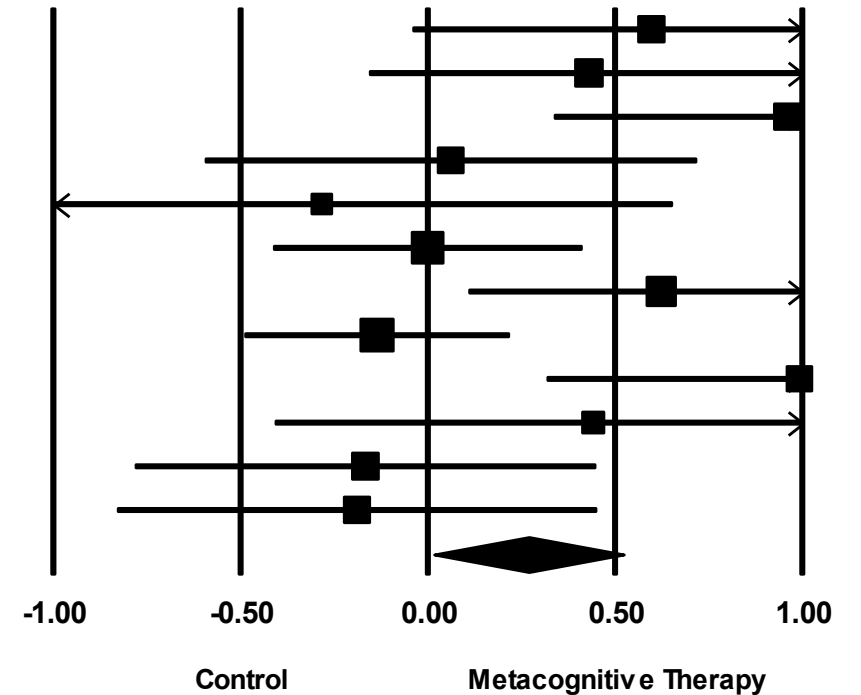
Function

Study name	Outcome	Statistics for each study						Hedges's g and 95% CI	
		Hedges's g	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value	
Ahuir et al. 2018	8.000	0.076	0.322	0.104	-0.554	0.707	0.237	0.813	
Andreou et al. 2017	8.000	-0.060	0.207	0.043	-0.465	0.346	-0.289	0.772	
Briki et al. 2014	8.000	-0.346	0.281	0.079	-0.896	0.203	-1.235	0.217	
de Pinho et al. 2021	8.000	1.240	0.299	0.089	0.654	1.826	4.147	0.000	
Fujii et al. 2021	8.000	-0.406	0.466	0.218	-1.320	0.508	-0.870	0.384	
Han et al. 2022	8.000	0.013	0.301	0.091	-0.578	0.604	0.044	0.965	
Inchausti et al. 2018	8.000	0.375	0.242	0.059	-0.100	0.849	1.548	0.122	
Ishikawa et al. 2020	8.000	0.445	0.282	0.080	-0.108	0.998	1.579	0.114	
Lopez-Morinigo et al. 2023	8.000	0.222	0.337	0.113	-0.438	0.881	0.659	0.510	
Naughton et al. 2012	8.000	1.007	0.473	0.224	0.080	1.934	2.130	0.033	
Ochoa et al. 2017	8.000	0.323	0.212	0.045	-0.092	0.739	1.524	0.127	
Parket al. 2020	8.000	0.604	0.263	0.069	0.088	1.119	2.296	0.022	
Rocha et al. 2013	8.000	0.240	0.326	0.106	-0.399	0.878	0.736	0.462	
Yildiz et al. 2019	8.000	0.254	0.430	0.185	-0.589	1.097	0.591	0.555	
Zalzala et al. 2022	8.000	0.749	0.352	0.124	0.059	1.439	2.128	0.033	
		0.307	0.109	0.012	0.093	0.522	2.806	0.005	



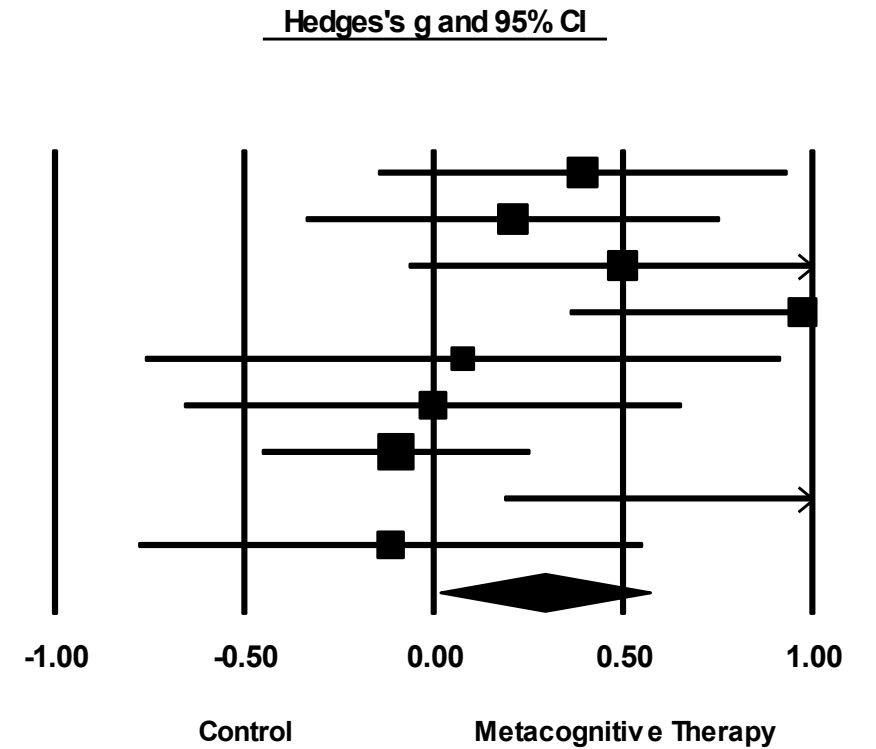
Social Cognition

Study name	Outcome	Statistics for each study						Hedges's g and 95% CI	
		Hedges's g	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value	
Fekete, et al. 2022	12.000	0.597	0.326	0.106	-0.042	1.236	1.832	0.067	
Gaweda et al. 2015	12.000	0.431	0.300	0.090	-0.157	1.019	1.437	0.151	
Han et al. 2022	12.000	0.961	0.319	0.102	0.336	1.586	3.015	0.003	
Lopez-Morinigo et al. 2023	12.000	0.062	0.336	0.113	-0.596	0.719	0.184	0.854	
Mendelson et al. 2021	12.000	-0.283	0.479	0.229	-1.221	0.655	-0.591	0.554	
Ochoa et al. 2017	12.000	0.000	0.211	0.044	-0.413	0.413	0.000	1.000	
Park et al. 2020	12.000	0.624	0.263	0.069	0.108	1.140	2.370	0.018	
Pijnenborg et al. 2019	12.000	-0.135	0.181	0.033	-0.490	0.219	-0.747	0.455	
Rocha et al. 2013	12.000	0.993	0.345	0.119	0.317	1.668	2.880	0.004	
Ronccone et al. 2004	12.000	0.442	0.434	0.188	-0.409	1.292	1.018	0.309	
Shan et al. 2021	12.000	-0.166	0.314	0.099	-0.782	0.450	-0.528	0.597	
Zonp et al. 2022	12.000	-0.189	0.327	0.107	-0.830	0.452	-0.577	0.564	
		0.268	0.129	0.017	0.015	0.521	2.077	0.038	



Clinical Insight

Study name	Outcome	Statistics for each study						
		Hedges's g	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Balzan et al. 2019	14.000	0.393	0.276	0.076	-0.147	0.934	1.426	0.154
Briki et al. 2014	14.000	0.209	0.279	0.078	-0.338	0.757	0.750	0.453
Favrod et al., 2014	14.000	0.499	0.288	0.083	-0.066	1.065	1.731	0.084
Gaweda et al. 2015	14.000	0.974	0.314	0.099	0.359	1.590	3.102	0.002
Kuokkanen et al. 2014	14.000	0.077	0.428	0.184	-0.763	0.917	0.180	0.857
Lopez-Morinigo et al. 2023	14.000	-0.002	0.335	0.113	-0.659	0.656	-0.005	0.996
Pijnenborg et al. 2019	14.000	-0.099	0.181	0.033	-0.454	0.255	-0.549	0.583
Vohs et al., 2018	14.000	1.148	0.491	0.241	0.186	2.109	2.339	0.019
Zalzala et al. 2022	14.000	-0.113	0.340	0.116	-0.780	0.553	-0.334	0.739
		0.292	0.141	0.020	0.016	0.569	2.071	0.038



Appendix 4. Key characteristics of studies included in systemic review and meta-analysis.

Study	MCT/MCT+ (1) All Other Forms of Metacognitive Therapy (0)	MCT (1) MCT+ (2) Other Forms of Metacognitive Therapy (3) MERIT (0)	Active Control (1) TAU (0)	Early Stage/F EP (1)	Inpatient (1) Mixed (2) Outpatient (0)	Received Compensa tion (1)	Includes PANSS Exclusion Criteria (1)	Baseline PANSS Score Total	Baseline PANSS Positive Score	CTAM Score	Duration of Tx (Number of Sessions)	Duration of Tx (Number of Weeks)
Acuna et al., 2021	1	1	0	0	0	0	0	51.33	10.37	69	10	10
Ahuir et al., 2018	1	1	1	1	0	0	0	52.27	9.85	39	8	8
Andreou et al., 2017	1	2	1	0	2	0	0	49.57	8.35	86	12	6
Balzan et al., 2019	1	2	1	0	0	1	1	62.42	17.23	86	4	4
Briki et al., 2014	1	1	1	0	2	0	1	86.6	20.85	68	16	8
Buonocore et al., 2015	1	1	1	0	0	0	1	80.03	18.45	62	16	16
Chen et al., 2021	1	1	0	0	2	1	1	72.73	16.05	60	8	8
de Pinho et al., 2021	1	1	0	0	2	0	0			69	8	4
Favrod et al., 2014	1	1	0	0	0	0	1		19.27	69	8	8
Fekete et al., 2022	1	1	0	0	0	0	0	80.24	19.46	61	16	16
Fujii et al., 2021	1	1	0	0	1	0	0	107.89	25.88	45	16	16
Gaweda et al., 2015	1	1	0	0	0	0	0			25	8	4
Han et al., 2022	0	3	0	0	0	0	0			30	10	10
Ho-Wai So et al., 2021	1	1	0	0	0	0	1	51.41	14.73	69	4	4
Inchausti et al., 2018	0	3	1	0	0	0	0	80.82	24.23	73	16	16
Ishikawa et al., 2020	1	1	0	0	2	1	1		23.78	72	10	10
Kaizerman-Dinerman et al., 2018	0	3	0	0	0	0	0	66.08	14.33	56	8	4
Kumar et al., 2010	1	1	0	0	1	0	0	98.18	27.94	54	8	4
Kother et al., 2017	1	1	1	0	2	0	0		14.18	70	8	4
Kuokkanen et al., 2014	1	1	0	0	1	0	0			67	8	4
Lam et al., 2015	1	1	0	0	2	0	0			37	8	4
Lecardeur et al., 2009	0	3	0	0	0	1	0	61.25	15.60	38	9	5
Lopez-Morinigo et al., 2023	1	1	1	0	0	0	0		8.42	73	8	8
Mendelson et al., 2021	1	1	1	0	0	1	0		13.18	29	10	6
Moritz et al., 2011	1	2	1	0	1	1	0	58.495		77	17	4
Moritz et al., 2015	0	3	1	0	2	0	0			54		
Moritz et al., 2013	1	1	1	0	2	1	1	53.45	12.15	82	8	4
Naughton et al., 2012	1	1	1	0	1	0	0	59.9	12.49	25	16	8
Ochoa et al., 2017	1	1	1	1	0	0	1	54.33	12.22	73	8	8
Ochoa et al., 2020	1	2	0	1							10	
Park et al., 2020	1	1	0	0	0	1	0			66	18	14
Pijnenborg et al., 2019	0	3	1	0	2	0	0	62.58	18.46	76	12	
Pos et al., 2018	1	1	1	1	2	0	1			68	8	8
Rocha et al., 2013	0	3	0	0	0	0	0	78.95	16.40	25	18	10
Roncone et al., 2004	0	3	0	0	1	0	0			41	22	22
Shan et al., 2021	1	1	1	1	1	0	1	103.9	23.82	62	8	8
Simón-Expósito et al., 2019	1	1	0	0	1	0	0			58	16	8
So et al., 2015	1	1	0	0	0	0	1	75.28	20.68	69	4	4
van Oosterhout et al., 2014	1	1	0	0	2	0	0			75	8	8
Vohs et al., 2018	0	0	0	1	0	0	1	65.91		58	24	24
Waller et al., 2015	0	3	0	0	0	0	0			54	6	6
Yildiz et al., 2019	1	1	1	0	0	0	0	81.85		65	40	20
Zonp et al., 2022	1	1	1	0	0	0	0			44	40	10

Study	% Sample with DSM Diagnosis of SCZ	Mean Age	Mean Years of Education	Mean Duration of Illness	% Male	Mean IQ	Mean Dosage CPZ	Country of Origin	Particular Intervention Type	Control Group Name
Acuna et al., 2021	100	26.69			69.56			Chile	MCT	TAU
Ahuir et al., 2018		23.55			40.82			Spain	MCT	Psychoeducation
Andreou et al., 2017	100	36.25	11.46		55.43	103.165	325.03	Germany	MCT+	CogPack
Balzan et al., 2019	88.9	37.21	11.41	11.11	59.26	98.83	517.06	Australia	MCT+	HappyNeuronPro CR
Briki et al., 2014	100	41.10	8.80	16.20	66.00		1439	France	MCT	ST
Buonocore et al., 2015	100	36.29	11.86	13.49	56.58			Italy	MCT & CACR	CACR & CNG
Chen et al., 2021	100	54.05	6.54	23.03	40.00			China	MCT & CBR	CBR
de Pinho et al., 2021	100	50.56	7.69		53.57			Portugal	MCT & TAU	TAU
Favrod et al., 2014	100	36.72			65.38		400.5	Switzerland	MCT & TAU	TAU
Fekete et al., 2022	100	41.31		13.74	47.83	105.66		Hungary	MCT & TAU	TAU
Fujii et al., 2021	100	54.23	12.39	32.53	58.85			Japan	MCT & OT	OT
Gaweda et al., 2015	100	51.00		21.83	49.98		487.96	Poland	MCT & TAU	TAU
Han et al., 2022	100	45.44			69.79			Korea	MCI - S & TAU	TAU
Ho-Wai So et al., 2021	100	41.45	11.66		53.57			China	MCT	TAU
Inchausti et al., 2018	83	37.71	10.45	11.80	55.07	93.42		Spain	MOSST	SST
Ishikawa et al., 2020		47.56		21.09	50.04		764.58	Japan	MCT & TAU	TAU
Kaizerman-Dinerman et al., 2018		46.85	10.83		63.09			Israel	MCG	Traditional Rehabilitation
Kumar et al., 2010	100	32.82	9.31	7.07	100.00			India	MCT	TAU
Kother et al., 2017	100	34.78	11.46		62.67			Germany	MCT	CogPack
Kuokkanen et al., 2014	100	43.55	10.50	16.45	100.00			Finland	MCT & TAU	TAU
Lam et al., 2015		40.58			61.04			China	MCT	TAU
Lecardeur et al., 2009		42.00	12.35	14.40	75.00		551	Canada	MSAT	TAU
Lopez-Morinigo et al., 2023	58.9	47.67			53.25	104.6	451.63	Spain	MCT	Control Group
Mendelson et al., 2021	75	33.87		7.87	57.14		507.39	France	MCT	ACBR
Moritz et al., 2011	100	34.05	11.30		64.58			Germany	MCT & MCT+	CogPack
Moritz et al., 2015	100	40.45			38.33			Germany	Metacognition - Augmented cognitive training	CR
Moritz et al., 2013	100	34.78	11.46		62.67	105.41		Germany	MCT	CogPack
Naughton et al., 2012	94.74	36.71			100.00			Ireland	MCT	Active Control Involving Metacognitive Judgements
Ochoa et al., 2017		27.59		2.29	69.66		494.47	Spain	MCT	Psycho-Educational Group
Ochoa et al., 2020		29.14			65.57			Spain	MCT+	TAU
Park et al., 2020	100	39.59	13.09	14.29	62.71	97.31		South Korea	MCT	Control
Pijnenborg et al., 2019	100	39.66		12.66	78.76			the Netherlands	REFLEX	Condition
Pos et al., 2018	66	23.33			80.00			the Netherlands	MCT	OT
Rocha et al., 2013	100	37.40		13.66	88.57		418.78	Portugal	MSCT	TAU
Ronccone et al., 2004	100	33.70	11.45	14.00	65.00	84.15	361.15	Italy	Intervention Programme	TAU
Shan et al., 2021	100	24.36	11.13		69.23			China	MCT	Non-Specific Therapy with Recreational Activities
Simón-Expósito et al., 2019	100	45.05	11.09	22.96	72.73			Spain	MCT	TAU
So et al., 2015	100	33.90	12.21		54.55		274.36	China	MCTd	TAU
van Oosterhout et al., 2014	100	37.53			71.43			the Netherlands	MCT	TAU
Vohs et al., 2018	100	23.82	11.63		94.67		625.02	United States	MERIT - EP	TAU
Waller et al., 2015	93.55	40.45	13.96	12.06	71.10			England	Thinking Well Intervention	TAU
Yildiz et al., 2019	100	35.25	11.55	13.40	65.00			United States	MCT & Work Therapy	Group Therapy for Healthy Living Skills + Work Therapy
Zonp et al., 2022	100	36.86		13.64	72.22			Turkey	MCT	PSST
Zalzala et al., 2022	100	31.90	12.29	9.96	54.45			Turkey	MCT	Information and Experience Sharing Meetings