

PSYCHOLOGICAL INTERVENTIONS TO REDUCE POSITIVE SYMPTOMS IN SCHIZOPHRENIA: SYSTEMATIC REVIEW AND NETWORK-META-ANALYSIS

Irene Bighelli, Georgia Salanti, Maximilian Huhn, Johannes Schneider-Thoma,
Marc Krause, Cornelia Reitmeir, Sofia Wallis, Felicitas Schwermann, Gabi Pitschel-Walz,
Corrado Barbui, Toshi Furukawa, Stefan Leucht

Dataset

Bighelli I, Salanti G, Huhn M, Schneider-Thoma J, Krause M, Reitmeir C, Wallis S, Schwermann F, Pitschel-Walz G, Barbui C, Furukawa TA, Leucht S. Psychological interventions to reduce positive symptoms in schizophrenia: systematic review and network meta-analysis. *World Psychiatry* 2018;17:316-329, available at:
<https://onlinelibrary.wiley.com/doi/epdf/10.1002/wps.20577>



This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under the Marie Skłodowska-Curie grant agreement No 701717

Study name	Treatment name - original	Treatment name - used for analyses	Country	Duration in weeks	Number of patients in the arm	Positive symptoms scale	Positive symptoms scale participants	Positive symptoms scale mean	Positive symptoms scale SD
ACTRN12616000976482	Cognitive remediation	Cognitive remediation	Australia	4	28	PANSS Positive	27	15.89	4.89
ACTRN12616000976482	Metacognitive Training	Metacognitive Training	Australia	4	28	PANSS Positive	27	14.04	4.27
Bach 2002	Treatment as usual	Treatment as usual	United States of America	16	40	99999	99999	99999	99999
Bach 2002	Acceptance and commitment therapy	Acceptance and commitment therapy	United States of America	16	40	99999	99999	99999	99999
Barnes 2001	Cognitive behavioral therapy	Cognitive behavioral therapy	99999	99999	75	99999	99999	99999	99999
Barnes 2001	Psychoeducation	Psychoeducation	99999	99999	75	99999	99999	99999	99999
Barnes 2001	Treatment as usual	Treatment as usual	99999	99999	75	99999	99999	99999	99999
Barrowclough 2006	Treatment as usual	Treatment as usual	UK	26	56	PANSS Positive	45	16.2	4.34
Barrowclough 2006	Cognitive behavioral therapy	Cognitive behavioral therapy	UK	26	57	PANSS Positive	54	16.04	5
Bechdolf 2004	Psychoeducation	Psychoeducation	Germany	8	48	PANSS Positive	40	11.4	4.5
Bechdolf 2004	Cognitive behavioral therapy	Cognitive behavioral therapy	Germany	8	40	PANSS Positive	31	11.3	4.2
Beigi 2012	Music therapy	Music therapy	Iran	99999	30	99999	99999	99999	99999
Beigi 2012	Control	Control	Iran	99999	26	99999	99999	99999	99999

Birchwood 2014	Treatment as usual	Treatment as usual	UK	39	99	PANSS Positive	88	17.85	5.51
Birchwood 2014	Cognitive behavioral therapy	Cognitive behavioral therapy	UK	39	98	PANSS Positive	86	16.06	4.53
Briki 2014	Supportive Therapy	Supportive Therapy	France	8	33	PANSS Positive	25	-0.04	4.25
Briki 2014	Metacognitive Training	Metacognitive Training	France	8	35	PANSS Positive	25	-2.72	3.98
Chadwick 2009	Waitlist	Waitlist	UK	10	11	PSYRATS	9	-2.1	6.94
Chadwick 2009	Mindfulness	Mindfulness	UK	10	11	PSYRATS	9	-4	6.81
Chadwick 2016	Mindfulness	Mindfulness	UK	16	54	PSYRATS: Auditory Hallucinations Scale	48	26.92	7.81
Chadwick 2016	Treatment as usual	Treatment as usual	UK	16	54	PSYRATS: Auditory Hallucinations Scale	44	27.43	8.35
ChiCTR-IPR-17011541	Cognitive behavioral therapy	Cognitive behavioral therapy	Hong Kong	99999	15	PSYRATS-Delusions	99999	99999	99999
ChiCTR-IPR-17011541	Waitlist	Waitlist	Hong Kong	99999	15	PSYRATS-Delusions	99999	99999	99999
Craig 2018	AVATAR therapy	AVATAR therapy	UK	12	75	SAPS	62	32.1	20.5
Craig 2018	Supportive counselling	Supportive counselling	UK	12	75	SAPS	61	39.93	20.75
Drury 1996	Cognitive therapy	Cognitive behavioral therapy	UK	12	30	PAS positive symptoms	20	2	2.57
Drury 1996	Recreation and support	Recreation and support	UK	12	32	PAS positive symptoms	20	4.6	2.72
Durham 2003	Cognitive behavioral therapy	Cognitive behavioral therapy	Scotland	39	22	PSYRATS	21	31.2	14.26

Durham 2003	Supportive Therapy	Supportive Therapy	Scotland	39	23	PSYRATS	19	32.4	13.77
Durham 2003	Treatment as usual	Treatment as usual	Scotland	39	21	PSYRATS	19	30.9	13.08
England 2007	Cognitive nursing intervention	Cognitive behavioral therapy	99999	18	44	99999	99999	99999	99999
England 2007	Treatment as usual	Treatment as usual	99999	18	21	99999	99999	99999	99999
Favrod 2014	Treatment as usual	Treatment as usual	Switzerland	8	26	PANSS Positive	24	-0.86	4.48
Favrod 2014	Metacognitive Training	Metacognitive Training	Switzerland	8	26	PANSS Positive	24	-4.54	3.22
Foster 2010	Cognitive behavioral therapy	Cognitive behavioral therapy	UK	4	12	PSYRATS DELUSIONS	9	14.6	4.2
Foster 2010	Treatment as usual	Treatment as usual	UK	4	12	PSYRATS DELUSIONS	11	17.8	2.6
Freeman 2014	Treatment as usual	Treatment as usual	UK	8	15	PSYRATS DELUSIONS	14	16.7	3.3
Freeman 2014	Cognitive behavioral therapy	Cognitive behavioral therapy	UK	8	15	PSYRATS DELUSIONS	15	14.3	6
Freeman 2015a	Cognitive behavioral therapy	Cognitive behavioral therapy	UK	8	73	PSYRATS DELUSIONS	70	14.3	4.8
Freeman 2015a	Treatment as usual	Treatment as usual	UK	8	77	PSYRATS DELUSIONS		15.9	5.1
Freeman 2015b	Treatment as usual	Treatment as usual	UK	12	26	PSYRATS	25	39.7	9.08
Freeman 2015b	Cognitive behavioral therapy	Cognitive behavioral therapy	UK	12	24	PSYRATS	22	41.4	10.38
Freeman 2016	Virtual reality cognitive therapy	Virtual reality cognitive therapy	United Kingdom	99999	15	PANSS Positive	99999	99999	99999

Freeman 2016	Virtual reality exposure	Virtual reality exposure	United Kingdom	99999	15	PANSS Positive	99999	99999	99999
Freeman 2016b	Befriending	Befriending	UK	26	75	PSYRATS-Delusions	99999	99999	99999
Freeman 2016b	Psychological Treatment	Psychological Treatment	UK	26	75	PSYRATS-Delusions	99999	99999	99999
Garety 2008a	Treatment as usual	Treatment as usual	United Kingdom	39	28	PANSS Positive	23	15.09	5.23
Garety 2008a	Cognitive behavioral therapy	Cognitive behavioral therapy	United Kingdom	39	27	PANSS Positive	21	13.95	5.69
Garety 2008a	Family intervention	Family intervention	United Kingdom	39	28	PANSS Positive	24	14.54	5.24
Garety 2008b	Treatment as usual	Treatment as usual	United Kingdom	39	112	PANSS Positive	90	16.49	6.47
Garety 2008b	Cognitive behavioral therapy	Cognitive behavioral therapy	United Kingdom	39	106	PANSS Positive	90	15.39	6.37
Garety 2017	Treatment as usual	Treatment as usual	UK	12	99999	PSYRATS Delusions	99999	99999	99999
Garety 2017	SlowMo Intervention	SlowMo Intervention	UK	12	99999	PSYRATS Delusions	99999	99999	99999
Gottlieb 2017	Treatment as usual	Treatment as usual	United States of America	24	18	PSYRATS total	17	48.17	20.49
Gottlieb 2017	Cognitive behavioral therapy	Cognitive behavioral therapy	United States of America	24	19	PSYRATS total	15	50.8	14.64
Habib 2015	Treatment as usual	Treatment as usual	Pakistan	21	21	PANSS Positive	99999	99999	99999
Habib 2015	Cognitive behavioral therapy	Cognitive behavioral therapy	Pakistan	21	21	PANSS Positive	99999	99999	99999
Haddock 1999	Cognitive behavioral therapy	Cognitive behavioral therapy	UK	5	10	PSYRATS	99999	99999	99999

Haddock 1999	Supportive counselling	Supportive counselling	UK	5	11	PSYRATS	99999	99999	99999
Haddock 2009	Social activity therapy	Social activity therapy	UK	26	39	PANSS Positive	28	15.75	5.7
Haddock 2009	Cognitive behavioral therapy	Cognitive behavioral therapy	UK	26	38	PANSS Positive	29	14.79	5.95
Hazell 2016	Waitlist	Waitlist	England	12	15	99999	99999	99999	99999
Hazell 2016	Cognitive behavioral therapy	Cognitive behavioral therapy	England	12	15	99999	99999	99999	99999
ISRCTN11422802	Behavioral intervention	Behavioral intervention	UK	8	99999	PSYRATS-Delusions	99999	99999	99999
ISRCTN11422802	Waitlist	Waitlist	UK	8	99999	PSYRATS-Delusions	99999	99999	99999
ISRCTN17852603	Mindfulness-based therapy	Mindfulness-based therapy	UK	12	20	PSYRATS-Delusions	99999	99999	99999
ISRCTN17852603	Treatment as usual	Treatment as usual	UK	12	20	PSYRATS-Delusions	99999	99999	99999
ISRCTN45308981	Talking With Voices	Talking With Voices	UK	26	99999	PANSS Positive	99999	99999	99999
ISRCTN45308981	Treatment as usual	Treatment as usual	UK	26	99999	PANSS Positive	99999	99999	99999
Jacobsen 2016	Mindfulness	Mindfulness	UK	99999	30	HPSVQ - (Hamilton Program for Schizophrenia Voices Questionnaire)	99999	99999	99999
Jacobsen 2016	Treatment as usual	Treatment as usual	UK	99999	30	HPSVQ - (Hamilton Program for Schizophrenia Voices Questionnaire)	99999	99999	99999
Jenner 2004	Treatment as usual	Treatment as usual	The Netherlands	39	39	PANSS Positive	34	-0.5	4.6
Jenner 2004	Hallucination Focused Integrative Treatment	Hallucination Focused Integrative Treatment	The Netherlands	39	39	PANSS Positive	35	-3.8	4.8

JPRN-UMIN000027301	Metacognitive Training	Metacognitive Training	Japan	10	99999	PANSS Positive	99999	99999	99999
JPRN-UMIN000027301	Treatment as usual	Treatment as usual	Japan	10	99999	PANSS Positive	99999	99999	99999
Krakvik 2013	Cognitive behavioral therapy	Cognitive behavioral therapy	Norway	26	23	PSYRATS	23	20.95	10.5
Krakvik 2013	Waitlist	Waitlist	Norway	26	22	PSYRATS	22	30.96	9.94
Kuipers 1997	Cognitive behavioral therapy	Cognitive behavioral therapy	United Kingdom	39	28	MADS	99999	99999	99999
Kuipers 1997	Treatment as usual	Treatment as usual	United Kingdom	39	32	MADS	99999	99999	99999
Kumar 2010	Metacognitive Training	Metacognitive Training	India	4	8	PANSS Positive	8	17.87	8.58
Kumar 2010	Treatment as usual	Treatment as usual	India	4	8	PANSS Positive	8	27.25	10.61
Landa 2012	Cognitive behavioral therapy	Cognitive behavioral therapy	99999	15	99999	99999	99999	99999	99999
Landa 2012	Treatment as usual	Treatment as usual	99999	15	99999	99999	99999	99999	99999
Law 2017	CBT + medication	CBT + medication	UK	26	25	99999	99999	99999	99999
Law 2017	Antipsychotic medication	Antipsychotic medication	UK	26	24	99999	99999	99999	99999
Law 2017	Cognitive behavioral therapy	Cognitive behavioral therapy	UK	26	26	99999	99999	99999	99999
Lecomte 2008	Waitlist	Waitlist	Canada	13	27	BPRS Positive	27	1.7	1.14
Lecomte 2008	Social skills training	Social skills training	Canada	13	54	BPRS Positive	54	1.8	1.1

Lecomte 2008	Cognitive behavioral therapy	Cognitive behavioral therapy	Canada	13	48	BPRS Positive	48	1.7	0.69
Lee 2012	Cognitive behavioural Social skills training	Cognitive behavioral therapy	Korea	7	12	SAPS	8	29.25	18.67
Lee 2012	Treatment as usual	Treatment as usual	Korea	7	13	SAPS	12	33.25	22.71
Lee 2013 PT	Supportive Therapy	Supportive Therapy	Korea	32	25	PANSS Positive	19	-2.1	1.6
Lee 2013 PT	Cognitive behavioral therapy	Cognitive behavioral therapy	Korea	32	25	PANSS Positive	18	-3	1.9
Levine 1998	Supportive Therapy	Supportive counselling	99999	6	6	PANSS Positive	6	13.7	2.5
Levine 1998	Cognitive therapy	Cognitive behavioral therapy	99999	6	6	PANSS Positive	6	7.8	4.1
Li 2015	Cognitive behavioral therapy	Cognitive behavioral therapy	China	24	96	PANSS Positive	96	15.23	5.78
Li 2015	Supportive Therapy	Supportive counselling	China	24		PANSS Positive			
McLeod 2007	Waitlist	Waitlist	99999	12	10	PANSS Positive	99999	99999	99999
McLeod 2007	Cognitive behavioral therapy	Cognitive behavioral therapy	99999	12	10	PANSS Positive	99999	99999	99999
Morrison 2014	Cognitive therapy	Cognitive behavioral therapy	United Kingdom	39	37	PANSS Positive	22	16	5.94
Morrison 2014	Treatment as usual	Treatment as usual	United Kingdom	39	37	PANSS Positive	23	17	4.85
N0172085914	Treatment as usual	Treatment as usual	UK	99999	99999	PSYRATS-hallucinations	99999	99999	99999
N0172085914	Cognitive behavioral therapy	Cognitive behavioral therapy	UK	99999	99999	PSYRATS-hallucinations	99999	99999	99999

NCT00688259	Supportive Therapy	Supportive Therapy	USA	26	99999	99999	99999	99999	99999
NCT00688259	Cognitive behavioral therapy	Cognitive behavioral therapy	USA	26	99999	99999	99999	99999	99999
NCT02336581	Treatment as usual	Treatment as usual	UK	99999	99999	99999	99999	99999	99999
NCT02336581	Acceptance and commitment therapy	Acceptance and commitment therapy	UK	99999	99999	99999	99999	99999	99999
NCT02974400	Cognitive behavioral therapy	Cognitive behavioral therapy	99999	99999	99999	99999	99999	99999	99999
NCT02974400	Waitlist	Waitlist	99999	99999	99999	99999	99999	99999	99999
NCT03275909	Integrated Psychological Therapy	Integrated Psychological Therapy	99999	99999	99999	99999	99999	99999	99999
NCT03275909	Treatment as usual	Treatment as usual	99999	99999	99999	99999	99999	99999	99999
Penn 2009	Cognitive behavioral therapy	Cognitive behavioral therapy	USA	12	32	PANSS Positive	32	14.5	3.7
Penn 2009	Supportive Therapy	Supportive Counselling	USA	12	33	PANSS Positive	33	15.9	4.4
Pinninti 2010	Cognitive behavioral therapy	Cognitive behavioral therapy	USA	12	18	PSYRATS	14	22.28	15.27
Pinninti 2010	Treatment as usual	Treatment as usual	USA	12	15	PSYRATS	11	28.09	13.7
Pot-Kolder 2016	Waitlist	Waitlist	Netherlands	12	58	99999	99999	99999	99999
Pot-Kolder 2016	Virtual-reality-based Cognitive behavioral therapy	Cognitive behavioral therapy	Netherlands	12	58	99999	99999	99999	99999
Pyle 2016	Cognitive behavioral therapy	Cognitive behavioral therapy	UK	39	99999	PANSS Positive	99999	99999	99999

Pyle 2016	Treatment as usual	Treatment as usual	UK	39	99999	PANSS Positive	99999	99999	99999
Rector 2003	Cognitive behavioral therapy	Cognitive behavioral therapy	Canada	26	24	PANSS Positive	24	12	4
Rector 2003	Treatment as usual	Treatment as usual	Canada	26	21	PANSS Positive	18	13.9	6.7
Ross 2011	Attention control activity	Attention control activity	United Kingdom	1	17	PANSS Positive	99999	99999	99999
Ross 2011	Reasoning training intervention	Reasoning training intervention	United Kingdom	1	17	PANSS Positive	99999	99999	99999
Schnackenberg 2017	Treatment as usual	Treatment as usual	Germany	44	10	PSYRATS - Hallucinations	5	26.7	10.88
Schnackenberg 2017	Experience Focused Counselling	Experience Focused Counselling	Germany	44	12	PSYRATS - Hallucinations	7	23.79	11.63
Sensky 2000	Befriending	Befriending	United Kingdom	39	44	99999	99999	99999	99999
Sensky 2000	Cognitive behavioral therapy	Cognitive behavioral therapy	United Kingdom	39	46	99999	99999	99999	99999
Shawyer 2016	Acceptance and commitment therapy	Acceptance and commitment therapy	Australia	13	49	PANSS Positive	49	20.5	5.74
Shawyer 2016	Befriending	Befriending	Australia	13	47	PANSS Positive	47	19.2	5.79
So 2015	Metacognitive Training	Metacognitive Training	Hongkong	4	23	PANSS Positive	23	13.64	4.57
So 2015	Waitlist	Waitlist	Hongkong	4	21	PANSS Positive	21	12.36	4.34
So 2015b	Treatment as usual	Treatment as usual	HongKong	4	99999	PANSS Positive	99999	99999	99999
So 2015b	Metacognitive Training	Metacognitive Training	HongKong	4	99999	PSYRATS	99999	99999	99999

Startup 2004	Cognitive behavioral therapy	Cognitive behavioral therapy	United Kingdom	26	47	SAPS	34	4.4	3.26
Startup 2004	Treatment as usual	Treatment as usual	United Kingdom	26	43	SAPS	32	6.7	4.34
Tarrier 1998	Supportive counselling	Supportive counselling	United Kingdom	10	26	BPRS for hallucinations or unusual thought content	26	-3.9	7.43
Tarrier 1998	Treatment as usual	Treatment as usual	United Kingdom	10	28	BPRS for hallucinations or unusual thought content	28	0.07	8.25
Tarrier 1998	Cognitive behavioral therapy	Cognitive behavioral therapy	United Kingdom	10	33	BPRS for hallucinations or unusual thought content	33	-7.8	11.56
Trower 2004	Treatment as usual	Treatment as usual	United Kingdom	26	20	PANSS Positive	17	99999	99999
Trower 2004	Cognitive behavioral therapy	Cognitive behavioral therapy	United Kingdom	26	18	PANSS Positive	15	3.7	99999
Turkington 2000	Befriending	Befriending	United Kingdom	8	6	99999	99999	99999	99999
Turkington 2000	Cognitive behavioral therapy	Cognitive behavioral therapy	United Kingdom	8	13	99999	99999	99999	99999
Turner 2017	Attention control activity	Attention control activity	99999	99999	99999	99999	99999	99999	99999
Turner 2017	Metacognitive Training	Metacognitive Training	99999	99999	99999	99999	99999	99999	99999
Ullevoldsaeter 2017	Cognitive remediation	Cognitive remediation	Norway	104	99999	99999	99999	99999	99999
Ullevoldsaeter 2017	Cognitive behavioral therapy	Cognitive behavioral therapy	Norway	104	99999	99999	99999	99999	99999
Valmaggia 2005	Cognitive behavioral therapy	Cognitive behavioral therapy	The Netherlands, Belgium	23	36	PANSS Positive	35	15.09	3.91
Valmaggia 2005	Supportive counselling	Supportive counselling	The Netherlands, Belgium	23	26	PANSS Positive	23	16.28	3.76

van der Gaag 2011	Cognitive behavioral therapy	Cognitive behavioral therapy	The Netherlands	26	110	PSYRATS	94	19.9	15.51
van der Gaag 2011	Treatment as usual	Treatment as usual	The Netherlands	26	106	PSYRATS	71	27.8	15.16
van Oosterhout 2014	Metacognitive Training	Metacognitive Training	The Netherlands	8	75	PSYRATS - Delusions	51	11.9	5.9
van Oosterhout 2014	Treatment as usual	Treatment as usual	The Netherlands	8	79	PSYRATS - Delusions	60	10.4	5.9
Velligan 2015	Treatment as usual	Treatment as usual	United States of America	39	42	99999	99999	99999	99999
Velligan 2015	Cognitive behavioral therapy + Cognitive adaptation training	Cognitive behavioral therapy + Cognitive adaptation training	United States of America	39	40	99999	99999	99999	99999
Velligan 2015	Cognitive behavioral therapy	Cognitive behavioral therapy	United States of America	39	43	99999	99999	99999	99999
Velligan 2015	Cognitive adaptation training	Cognitive adaptation training	United States of America	39	41	99999	99999	99999	99999
Wahass 1997	Cognitive behavioral therapy	Cognitive behavioral therapy	Saudi Arabia	9	3	Structured Auditory Hallucinations Interview (SAHI)	99999	99999	99999
Wahass 1997	Treatment as usual	Treatment as usual	Saudi Arabia	9	3	Structured Auditory Hallucinations Interview (SAHI)	99999	99999	99999
Wittorf 2010	Supportive Therapy	Supportive Therapy	Germany	33	50	PANSS Positive	33	99999	99999
Wittorf 2010	Cognitive behavioral therapy	Cognitive behavioral therapy	Germany	33	50	PANSS Positive	34	99999	99999
Wykes 2005	Treatment as usual	Treatment as usual	UK	10	40	PSYRATS Hallucinations	36	22.9	12.1
Wykes 2005	Cognitive behavioral therapy	Cognitive behavioral therapy	UK	10	45	PSYRATS Hallucinations	37	22.6	10.5
Yiend 2017	Text-Reading Control	Text-Reading Control	UK	6	30	PANSS Positive	99999	99999	99999

Yiend 2017	Computerized Cognitive Bias Modification for paranoia	Computerized Cognitive Bias Modification for paranoia	UK	6	30	PANSS Positive	99999	99999	99999
------------	---	---	----	---	----	----------------	-------	-------	-------