Effectiveness of metacognitive training for psychosis: A systematic review and meta-analysis

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01 BACKGROUND

Metacognitive training for psychosis

- 8-10 modules, delivered weekly 45-60 min
- Group or individual intervention
- PowerPoint slide format
- Culturally sensitive
- Available in 37 languages at no cost
- Low threshold: aims to plant doubt in delusional beliefs by raising awareness of cognitive biases

Why is an updated systematic review & meta-analysis warranted?

- Significant increase in international trials
- Update effectiveness estimates for primary outcomes (e.g., delusions, cognitive biases)
- Address inconsistent / nonsignificant meta-analytic findings[1,2]
- Reassess treatment & participant-related moderators
- Gap: effectiveness on secondary outcomes?
- Gap: maintenance effectiveness?

RESEARCH AIMS

1. **Examine MCT effectiveness on proximal (directly targeted) & distal (indirectly influenced) outcomes**
2. **Examine maintenance of MCT treatment effectiveness**
3. **Assess moderators that may enhance outcomes**

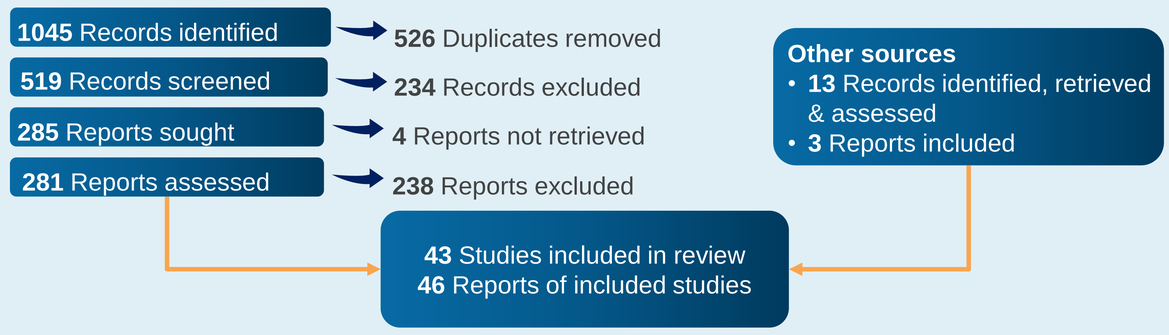
02 METHODS

Data sources
- 11 electronic databases were searched from the first MCT publication in 2007[3] to June 3rd, 2021 (alert until Sept. 10, 2021)
- References lists of all reports & prior meta-analyses screened

Study Selection
- Participants with schizophrenia spectrum & other psychotic disorders
- No age, sex, gender, race & ethnicity, language, or study design restrictions

Proximal Outcomes
- Global positive symptoms
- Delusions
- Hallucinations
- Cognitive biases

Distal Outcomes
- Self-esteem
- Negative symptoms
- Quality of life
- Well-being
- Functioning



Data synthesis
- PRISMA[4] guidelines followed
- Random effects models; Hedges *g* effect sizes computed
- Mixed-Methods Appraisal Tool[6] assessed study quality

03 RESULTS

Variable	No. of studies	No. of participants	Effect size (Hedges *g*, 95% CI)
Proximal outcomes	38	1717	0.39 (0.25 to 0.53)
Positive symptoms	36	1648	0.50 (0.34 to 0.66)
Delusions	23	1156	0.69 (0.45 to 0.93)
Hallucinations	9	518	0.25 (0.11 to 0.39)
Cognitive bias	19	931	0.16 (0.02 to 0.30)
Distal outcomes	26	1180	0.32 (0.20 to 0.44)
Negative symptoms	17	765	0.23 (0.09 to 0.37)
Self-esteem	5	325	0.17 (0.03 to 0.31)
Quality of life	7	278	0.20 (-0.07 to 0.47)
Functioning	13	522	0.41 (0.14 to 0.68)

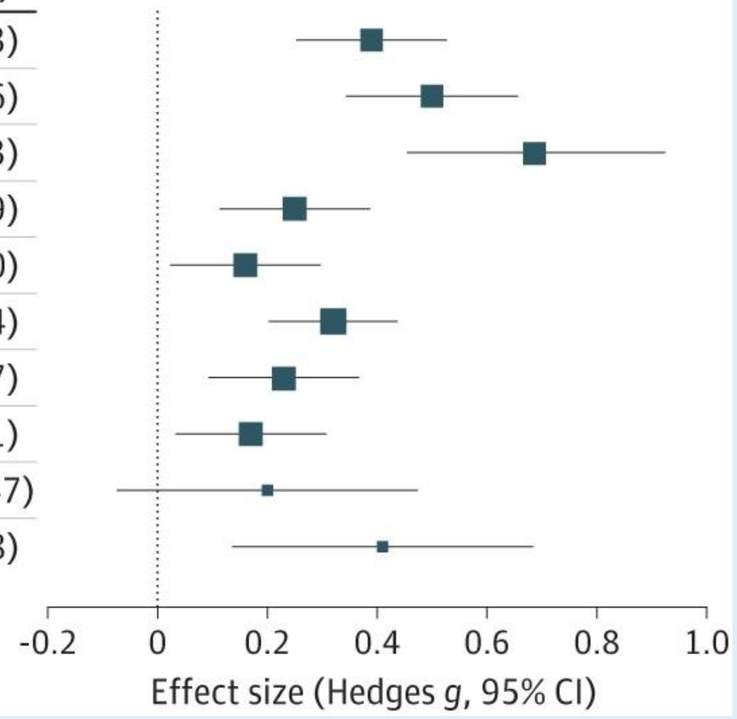


Figure 1. Effect Sizes of Metacognitive Training for Proximal and Distal Outcomes

Note. Total participants, N = 1816; square sizes represent the weight of the standard error of the effect size. Higher precision studies (i.e., a smaller SE) contribute to larger weights, and thus larger squares, than lower precision studies.

Table 1. Participant Characteristics of Included Studies

Characteristic	Number of total Studies	Mean	SD	Range
Age	43	36.89	7.81	22.30-55.28
Duration of illness years	22	13.05	8.34	1.31-32.53
Chlorpromazine equivalent	19	563.40	324.77	114.40-1519.40
% Male participants	41	63.19	14.65	41-100
% Schizophrenia spectrum	41	94.24	12.23	59-100
% Other psychotic disorder	41	5.73	12.22	0-41

Note. Total studies = 43; total reports = 46

MCT Maintenance Effectiveness
- Analyzed for randomized clinical trials (n=30)
- Both MCT & Control groups maintained therapeutic level at 1-year posttreatment
- Evidenced by small, nonsignificant ES values for change over time (g values from 0.01 to 0.16; P values from .15 to .95)
- Therapeutic gains made by the experimental group were steadily maintained

Moderator Analyses
- Year of study publication was the only sig. moderator, observed for hallucinations (β = 0.04; 95% CI, 0.00-0.07; P = .03)

04 DISCUSSION

➔ MCT was effective on proximal outcomes: reducing global positive symptoms, delusions, hallucinations & cognitive biases

➔ For the first time, effectiveness was observed on self-esteem, negative symptoms, & functioning

➔ Analyses were underpowered for quality of life, well-being was assessed by only 1 study

➔Effectiveness was maintained up to 1-year posttreatment on all significant outcomes

05 IMPLICATIONS FOR MCT

✸Effective & durable brief intervention

✸Deliverable in several treatment contexts by a variety of mental healthcare professionals

✸Appears ready for large-scale implementation

✸May merit inclusion in clinical guideline recommendations for the treatment of schizophrenia spectrum & other psychotic disorders

Link to our recent publication in JAMA Psychiatry

Penney D et al. (2022) Immediate and Sustained Outcomes and Moderators Associated With Metacognitive Training for Psychosis: A Systematic Review and Meta-analysis. *JAMA Psychiatry.* doi:10.1001/jamapsychiatry.2022.0277

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[1] van Oosterhout *Psychol Med* 2016
[2] Burlingame *Psychotherapy* 2020
[3] Mortiz *German J Psychiatry* 2007
[4] Page *BMJ* 2021
[5] Hong *Educ Inf* 2018