# Cureus

Open Access Review
Article

DOI: 10.7759/cureus.39252

# Comparison of Metacognitive Therapy Versus Cognitive Behavioral Therapy for Generalized Anxiety Disorder: A Meta-Analysis of Randomized Control Trials

Anurag Rawat [1], Niraj Sangroula [2], Areeba Khan [3], Sana Faisal [4, 5], Ali Chand [6], Rao Ahmed Yousaf [7], Nazar Muhammad [8], Humayoun Yousaf [6]

1. Interventional Cardiology, Himalayan Institute of Medical Sciences, Dehradun, IND 2. Psychiatry, College of Medical Sciences, Bharatpur, NPL 3. Critical Care Medicine, United Medical and Dental College, Karachi, PAK 4. Internal Medicine, California Institute of Behavioral Neurosciences & Psychology, Fairfield, USA 5. Internal Medicine, Jinnah Sindh Medical University, Karachi, PAK 6. Medicine, Shaikh Khalifa Bin Zayed Medical and Dental College, Lahore, PAK 7. Psychiatry, Faisalabad Medical University, Faisalabad, PAK 8. Psychiatry, Cornerstone Family Healthcare, New York, USA

Corresponding author: Sana Faisal, dr.smehwish@gmail.com

## Abstract

The aim of this meta-analysis is to compare the efficacy of meta-cognitive therapy (MCT) and cognitive behavioral therapy (CBT) in patients with generalized anxiety disorder (GAD). This study is reported according to the guidelines of Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). A systematic electronic literature search was conducted on April 20, 2023, to find studies reporting on the efficacy of MCT for GAD. The search keywords included "Generalized anxiety disorders," "meta-cognitive therapy," "cognitive behavior therapy," and "randomized control trials.: The following databases were searched to find relevant articles: PubMed, PsychInfo, CINAHL, and SCOPUS. Outcomes assessed in the present meta-analysis included the change in the Penn State Worry Questionnaire (PSWQ) from baseline to completion of treatment and after two years of follow-up. The PSWQ measures the trait of worry in adults. Worry is regarded as a dominant feature of GAD. Secondary outcomes assessed in this meta-analysis included symptom severity using the Beck anxiety inventory (BAI). Change in BAI was scored from baseline to completion of treatment and after two years of follow-up. A total of three studies were included in this meta-analysis. The results show that patients treated with MCT had greater reductions in PSWQ and BAI scores post-treatment and after two years of treatment, as well as higher rates of recovery compared to those treated with CBT. These findings suggest that MCT is a promising approach for treating GAD and may have advantages over traditional CBT approaches.

Categories: Psychiatry, Psychology, Epidemiology/Public Health
Keywords: efficacy, meta-analysis, generalized anxiety disorder, cognitive behavioral therapy, metacognitive therapy

## Introduction And Background

Generalized anxiety disorder (GAD) is a prevalent condition that has long-lasting and negative impacts on one's quality of life [1]. The main features of GAD are persistent, unmanageable worries that relate to various events or actions lasting for at least six months. GAD is often accompanied by physical symptoms such as restlessness, tiredness, poor concentration, irritability, sleep difficulties, and muscle tension [2]. GAD is associated with increased rates of impairment, comorbidity, low quality of life, and long-term disability [3-5].

The preferred form of psychotherapy for GAD is cognitive behavioral therapy (CBT) [6]. CBT has been shown to bring about significant improvement in GAD, with around 50% of patients experiencing clinical improvement two years after treatment [7,8]. Metacognitive therapy (MCT) is a newer approach to treating GAD that has proven to be particularly successful [9]. Research has demonstrated that in randomized trials for anxiety and depression, MCT resulted in recovery rates ranging from 72% to 80% [9]. MCT is an alternative therapy option to CBT. MCT emphasizes changing thought processes instead of thought content [10]. It is a good comparator for CBT as it appears to be effective and does not involve exposure, cognitive restructuring, breathing techniques, or applied relaxation, which are at the core of CBT, thus decreasing overlap [11].

MCT was developed as a way of improving the effectiveness of treatment for various mental health conditions, including GAD [12]. MCT is based on the metacognitive model of GAD, which emphasizes the significance of metacognitive beliefs regarding worry in maintaining the disorder. Positive metacognitions involve beliefs that worrying is necessary, while negative metacognitions include beliefs about the uncontrollability and harmfulness of worrying [13]. MCT aims to modify unhelpful metacognitive beliefs rather than the content of worrying itself. Numerous clinical trials have demonstrated that MCT is a

successful treatment for various disorders, including GAD [10].

The previous meta-analysis conducted by Normann et al. in 2018 assessed the efficacy of MCT involving patients with depression, anxiety, and other psychological illnesses. The study found that MCT is highly efficient in decreasing symptoms of a range of primary targeted psychological complaints, along with symptoms of depression, anxiety, and maladaptive metacognitions. However, the present meta-analysis focuses on the effectiveness of MCT in patients with GAD and included recently conducted clinical trials as well [10]. Our meta-analysis aims to compare the efficacy of MCT with CBT in patients with GAD.

# Review

## Methodology

This study was reported according to the guidelines of Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). A systematic electronic literature search was conducted on April 20, 2023, to find studies reporting on the efficacy of MCT for GAD. The search keywords included "Generalized anxiety disorders," "meta-cognitive therapy," "cognitive behavioral therapy," and "randomized control trials." We used Medical subject headings (MeSH) terms along with boolean algebra operators to further enhance the search. The following databases were searched to find relevant articles: PubMed, PsychInfo, CINAHL, and SCOPUS. The reference lists of included articles were also manually screened.

Studies were included in this meta-analysis if (a) they were randomized controlled trials (RCTs) on adult patients with GAD; (b) they compared the efficacy of MCT with CBT; and (c) they were published in the English language. Studies were excluded if they were retrospective and prospective cohorts, case-control studies, reviews, case reports, and case series. We excluded studies that did not report desired outcomes, cross-over studies, and those that lacked a comparison group.

*Data Abstraction and Risk of Bias Assessment*

The present meta-analysis was performed according to the PRISMA 2020 guidelines. The titles and abstracts of all studies from the four databases that matched the keywords were separately screened according to the eligibility criteria and duplicates were removed. Two reviewers performed the literature search (AR, NS), screening, and eligibility assessments (SF, AC). Abstracts and titles were screened separately according to the above-mentioned inclusion criteria. Disagreements between the two reviewers were resolved by discussion. Two reviewers extracted data from included studies such as author name, year of publication, sample size, intervention, outcomes assessed, follow-up duration, and participants' characteristics. The risk of bias of all included studies was calculated using the Cochrane Risk of Bias assessment tool. The risk of bias was assessed by two authors independently.

Outcomes assessed in this meta-analysis included the change in the Penn State Worry Questionnaire (PSWQ) from baseline to completion of treatment and after two years of follow-up. The PSWQ measures the trait of worry in adults. Worry is regarded as a dominant feature of GAD. Secondary outcomes assessed in this meta-analysis included symptom severity using the Beck anxiety inventory (BAI). Change in BAI was scored from baseline to completion of treatment and after two years of follow-up. The number of patients recovered (as defined by individual studies) after completion of the treatment was also assessed as a secondary outcome in this meta-analysis.

*Data Synthesis and Analysis*

A meta-analysis was performed using RevMan 5.4.1 (The Cochrane Collaboration, London, United Kingdom). For continuous outcomes, we calculated the mean difference (MD) with a 95% confidence interval (CI). For categorical outcomes, the risk ratio (RR) was computed with a 95% CI. A p-value <0.05 was considered significant. To assess the variability in the study outcomes, we employed the $I^2$ statistic, which indicates the percentage of variation between studies that results from differences other than chance. It has been proposed that $I^2$ values of 25%, 50%, and 75% can be classified as indicating low, moderate, and high degrees of diversity, respectively.

## Results

We identified 586 records through online database searching. After removing duplicates, 538 articles were screened using titles and abstracts. The full text of eligible records was obtained and a detailed assessment was done based on the pre-defined inclusion and exclusion criteria. Finally, three RCTs met the eligibility criteria and were included in this meta-analysis. Figure *1* shows the process of study selection. Table *1* shows the characteristics of included studies. Figure *2* illustrates the risk of bias graph.
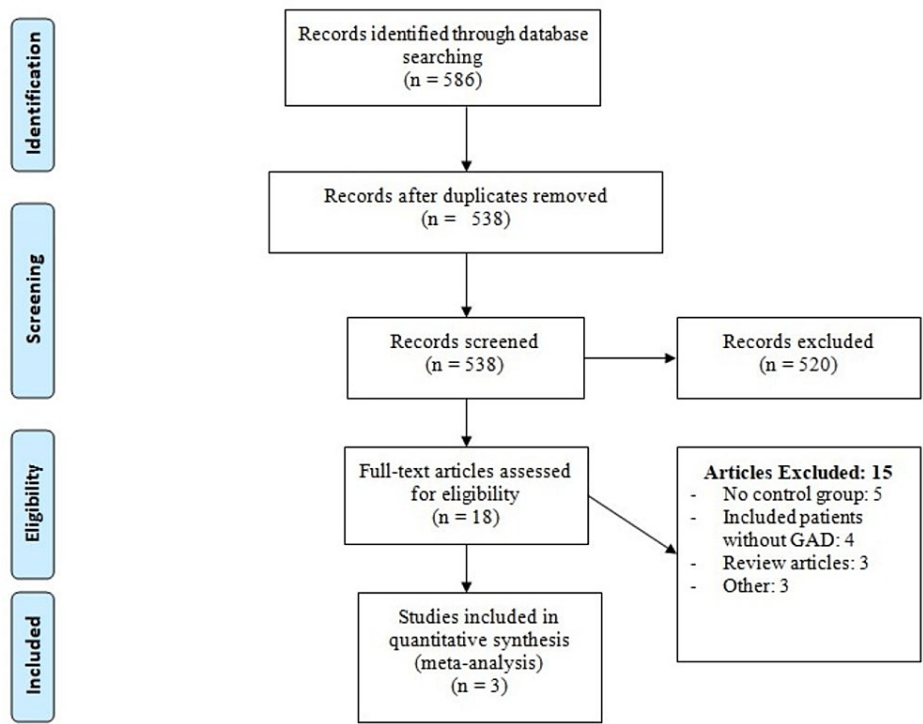
**FIGURE 1: PRISMA flowchart of selection of studies.**

GAD = generalized anxiety disorder; PRISMA = Preferred Reporting Items for Systematic Reviews and Meta-Analyses

| Author name | Year | Groups | Sample size | Therapy | Follow-up |
|---|---|---|---|---|---|
| Heiden et al. [14] | 2012 | MCT | 54 | 14 weekly sessions of 45 minutes duration | 6 months |
| | | CBT | 52 | | |
| Nordahl et al. [11] | 2018 | MCT | 32 | 12 weekly sessions of 60 minutes duration | 2 years |
| | | CBT | 28 | | |
| Solem et al. [15] | 2021 | MCT | 22 | 12 weekly sessions of 60 minutes duration | 2 years |
| | | CBT | 17 | | |

**TABLE 1: Characteristics of included studies.**

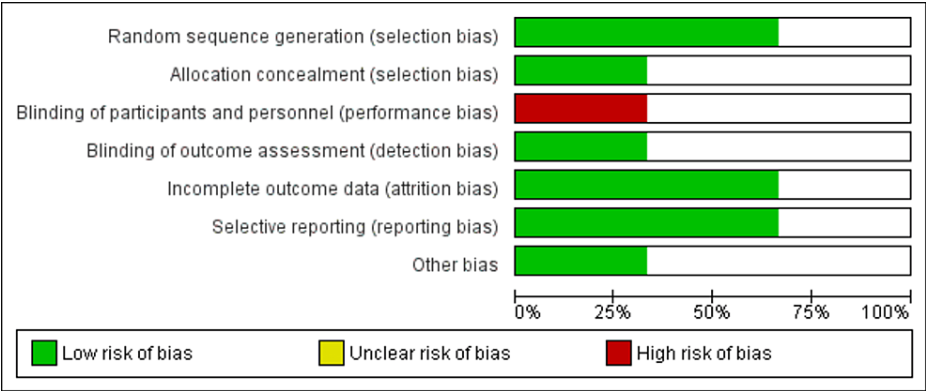CBT = cognitive behavior therapy; MCT = metacognitive therapy

**FIGURE 2: Risk of bias graph.**

*Meta-Analysis of Outcomes*

The difference in the PSWQ score from baseline to post-treatment was assessed by three studies. Pooled analysis showed that the reduction in the PSWQ score post-treatment was significantly higher in patients randomized in the MCT group compared to patients randomized in the CBT group (MD = -10.70, 95% CI = -14.97, -6.44, p < 0.0001), as shown in Figure 3. No significant heterogeneity was reported among the study results ($I^2$ = 0%). Two studies assessed the change in the PSWQ score from baseline to the two-year follow-up. Pooled analysis showed that the reduction in the PSWQ score post-treatment was significantly higher in patients randomized in the MCT group compared to patients randomized in the CBT group (MD = -7.82, 95% CI = -14.14, -1.51, p < 0.02), as shown in figure 4. No significant heterogeneity was reported among the study results ($I^2$ = 0%).
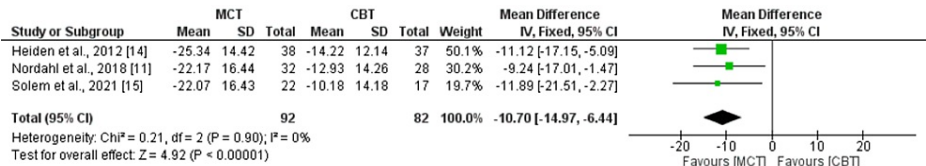


**FIGURE 3: Comparison of change in the PSWQ score from baseline to completion of treatment.**

MCT = metacognitive therapy; CBT = cognitive behavioral therapy; PSWQ = Penn State Worry Questionnaire
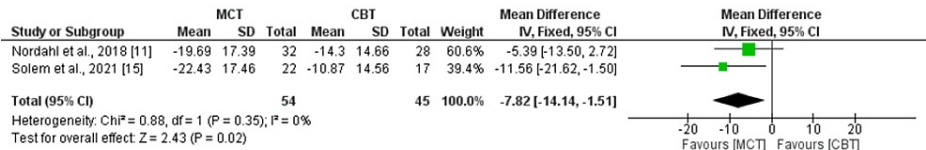
Sources: references [11,14,15].



**FIGURE 4: Comparison of change in the PSWQ score from baseline to two years post-treatment.**

MCT = metacognitive therapy; CBT = cognitive behavioral therapy; PSWQ = Penn State Worry Questionnaire

Sources: references [11,15].

Two studies assessed change in BAI from baseline to post-treatment. Pooled analysis showed that the reduction in the BAI score was significantly greater in patients receiving MCT (MD = -8.83, 95% CI = -14.57, -3.08), as shown in Figure 5. No significant heterogeneity was reported among the study results ($I^2$ = 0%). We also assessed the change in the BAI score from baseline to the two-year follow-up. Pooled analysis showed that the reduction in the BAI score from baseline to the

two-year follow-up (MD = -8.71, 95% CI = -14.48, -2.95), as shown in Figure 6. No significant heterogeneity was reported among the study results ($I^2 = 0$%).
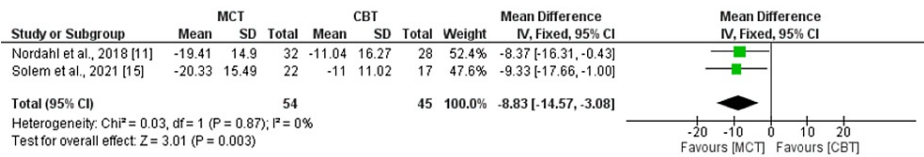


**FIGURE 5: Comparison of change in the BAI score from baseline to completion of treatment.**

MCT = metacognitive therapy; CBT = cognitive behavioral therapy; BAI = Beck anxiety inventory
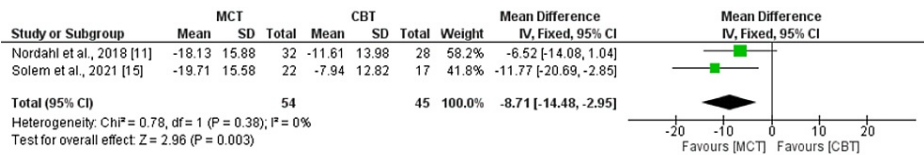
Sources: references [11,15].



**FIGURE 6: Comparison of change in the BAI score from baseline to two years post-treatment.**

MCT = metacognitive therapy; CBT = cognitive behavioral therapy; BAI = Beck anxiety inventory

Sources: references [11,15].

*Recovery Rates*

Three studies compared recovery rates between the MCT and CBT groups. After completion of treatment, pooled rate of recovery was significantly higher in patients receiving MCT (67.36%) compared to patients receiving CBT (42.86%) (RR = 1.59, 95% CI = 1.19, 2.11). No heterogeneity was reported among the study results ($I^2 = 0$%).
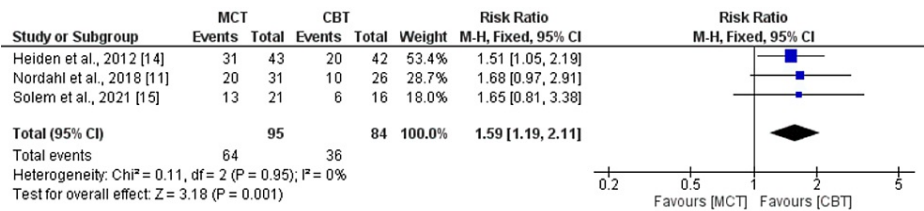


**FIGURE 7: Comparison of the effect on MCT and CBT on recovery rates.**

MCT = metacognitive therapy; CBT = cognitive behavioral therapy

## Discussion

In this meta-analysis, we aimed to compare the efficacy of MCT and CBT in patients with GAD. We included three clinical trials, and our pooled analysis showed that MCT is more effective in reducing PSWQ and BAI scores. Additionally, the proportion of recovered patients was significantly greater in the MCT-treated group compared to the other study group. This is the first meta-analysis comparing MCT and CBT in patients with GAD.

The benefit of using MCT instead of CBT was observed at the end of treatment and at a medium-term follow-up. This advantage was still present at a two-year follow-up. The difference in results at the long-term follow-up may be because the two therapies address different psychological mechanisms. CBT aims to teach relaxation skills and challenge the content of worry, whereas MCT focuses on challenging beliefs about

2023 Rawat et al. Cureus 15(5): e39252. DOI 10.7759/cureus.39252

5 of 7

worry without addressing the content of worry. MCT helps patients regulate worry processes in a way that reduces the significance of thoughts. It is possible that the better outcome of MCT is due to greater improvement in dysfunctional metacognitions that form the foundation of long-term mental regulation [16].

MCT is having a significant impact on the treatment of various psychiatric disorders worldwide, particularly in the areas of major depression and anxiety disorders, which have been the focus of most research so far [17,18]. The transdiagnostic approach of MCT makes it easy to adapt and requires less time to gain mastery, which makes it appealing to psychotherapists. MCT is well-suited to the current situation of psychiatric disorders, where comorbidity is common, and comorbid disorders share similar underlying psychological substrates and psychosocial vulnerabilities [19,20]. MCT can simultaneously address symptoms of multiple psychiatric disorders instead of treating them one at a time, as done in sequential approaches such as CBT. Additionally, MCT is shorter in duration than CBT, which can require 12-20 sessions [21]. As a result, it can lead to rapid improvement, reduce disease-related distress and dysfunction, and decrease the overall cost of treatment while freeing up the therapist's time to attend to more patients. MCT has been found to be not only feasible and acceptable (as indicated by high treatment adherence) but also effective in treating various psychiatric disorders [22].

This study has certain limitations. First, only three studies were included in the pooled analysis. However, all studies support the use of MCT in patients with GAD. Second, we were not able to perform subgroup analysis based on the severity of the disease. To enhance conclusions about the efficacy of MCT, we advise future MCT trials to include randomized control designs with evidence-based comparison conditions, particularly when looking at anxiety or depression.

## Conclusions

This meta-analysis indicates that MCT may be more effective than CBT in the treatment of GAD. The results show that patients treated with MCT had greater reductions in PSWQ and BAI scores and higher rates of recovery compared to those treated with CBT. These findings suggest that MCT is a promising approach for treating GAD and may have advantages over traditional CBT approaches. However, it is important to note that the sample size of studies included in this analysis was small, and further studies with larger sample sizes are needed to confirm these findings. Nonetheless, the transdiagnostic approach and shorter duration of MCT make it a feasible and cost-effective option for the treatment of GAD and other psychiatric disorders. Future studies should focus on the efficacy of MCT in treating more severe cases of GAD and compare it to other evidence-based treatments. Overall, this study contributes to the growing body of research on MCT and its potential as a valuable alternative to traditional therapies for the treatment of GAD.

## Additional Information

### Disclosures

**Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

## References

1. Stein MB, Sareen J: Clinical practice. Generalized anxiety disorder. N Engl J Med. 2015, 373:2059-68. 10.1056/NEJMcp1502514
2. DeMartini J, Patel G, Fancher TL: Generalized anxiety disorder. Ann Intern Med. 2019, 170:ITC49-64. 10.7326/AITC201904020
3. Vesga-López O, Schneier F, Wang S, Heimberg R, Liu SM, Hasin DS, Blanco C: Gender differences in generalized anxiety disorder: results from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). J Clin Psychiatry. 2008, 69:1606-16.
4. Holaway RM, Rodebaugh TL, Heimberg RG: The Epidemiology of Worry and Generalized Anxiety Disorder. Worry and Its Psychological Disorders. Theory, Assessment, and Treatment. Davey GC, Wells A (ed): Wiley & Sons, West Sussex; 2006.
5. Lieb R, Becker E, Altamura C: The epidemiology of generalized anxiety disorder in Europe . Eur Neuropsychopharmacol. 2005, 15:445-52. 10.1016/j.euroneuro.2005.04.010
6. Borkovec TD, Costello E: Efficacy of applied relaxation and cognitive-behavioral therapy in the treatment of generalized anxiety disorder. J Consult Clin Psychol. 1993, 61:611-9. 10.1037//0022-006x.61.4.611
7. Borkovec TD, Ruscio AM: Psychotherapy for generalized anxiety disorder . J Clin Psychiatry. 2001, 62 Suppl 11:37-42; discussion 43-5.
8. Hunot V, Churchill R, Silva de Lima M, Teixeira V: Psychological therapies for generalised anxiety disorder . Cochrane Database Syst Rev. 2007, 2007:CD001848. 10.1002/14651858.CD001848.pub4
9. Walczak M, Breinholst S, Ollendick T, Esbjørn BH: Cognitive behavior therapy and metacognitive therapy: moderators of treatment outcomes for children with generalized anxiety disorder. Child Psychiatry Hum Dev. 2019, 50:449-58. 10.1007/s10578-018-0853-1
10. Normann N, Morina N: The efficacy of metacognitive therapy: a systematic review and meta-analysis . Front

Psychol. 2018, 9:2211. 10.3389/fpsyg.2018.02211

11. Nordahl HM, Borkovec TD, Hagen R, et al.: Metacognitive therapy versus cognitive-behavioural therapy in adults with generalised anxiety disorder. BJPsych Open. 2018, 4:393-400. 10.1192/bjo.2018.54

12. Wells A: Metacognitive Therapy for Anxiety and Depression. Guilford Press, New York; 2009.

13. Wells A: Cognition about cognition: metacognitive therapy and change in generalized anxiety disorder and social phobia. Cogn Behav Pract. 2007, 14:18-25. 10.1016/j.cbpra.2006.01.005

14. van der Heiden C, Muris P, van der Molen HT: Randomized controlled trial on the effectiveness of metacognitive therapy and intolerance-of-uncertainty therapy for generalized anxiety disorder. Behav Res Ther. 2012, 50:100-9. 10.1016/j.brat.2011.12.005

15. Solem S, Wells A, Kennair LE, Hagen R, Nordahl H, Hjemdal O: Metacognitive therapy versus cognitive-behavioral therapy in adults with generalized anxiety disorder: a 9-year follow-up study. Brain Behav. 2021, 11:e2358. 10.1002/brb3.2358

16. Wells A: Breaking the cybernetic code: understanding and treating the human metacognitive control system to enhance mental health. Front Psychol. 2019, 10:2621. 10.3389/fpsyg.2019.02621

17. Dammen T, Papageorgiou C, Wells A: An open trial of group metacognitive therapy for depression in Norway. Nord J Psychiatry. 2015, 69:126-31. 10.3109/08039488.2014.936502

18. Haseth S, Solem S, Sørø GB, Bjørnstad E, Grøtte T, Fisher P: Group metacognitive therapy for generalized anxiety disorder: a pilot feasibility trial. Front Psychol. 2019, 10:290. 10.3389/fpsyg.2019.00290

19. Johnson SU, Hoffart A: Moderators and predictors of outcome in metacognitive and cognitive behavioural therapy for co-morbid anxiety disorders. Clin Psychol Psychother. 2019, 26:399-408. 10.1002/cpp.2361

20. Johnson SU, Hoffart A, Nordahl HM, Wampold BE: Metacognitive therapy versus disorder-specific CBT for comorbid anxiety disorders: a randomized controlled trial. J Anxiety Disord. 2017, 50:103-12. 10.1016/j.janxdis.2017.06.004

21. Barkham M, Saxon D: The effectiveness of high-intensity CBT and counselling alone and following low-intensity CBT: a reanalysis of the 2nd UK National Audit of Psychological Therapies data. BMC Psychiatry. 2018, 18:321. 10.1186/s12888-018-1899-0

22. Naeem F, Farooq S, Kingdon D: Cognitive behavioural therapy (brief versus standard duration) for schizophrenia. Cochrane Database Syst Rev. 2015, 2015:CD010646. 10.1002/14651858.CD010646.pub3