

# Metacognitive and cognitive-behavioral interventions for psychosis: new developments

Steffen Moritz, PhD; Jan Philipp Klein, MD; Paul H. Lysaker, PhD; Stephanie Mehl, PhD

This review describes four cognitive approaches for the treatment of schizophrenia: cognitive-behavioral therapy for psychosis (CBTp), metacognitive therapy, metacognitive training, and metacognitive reflection insight therapy (MERIT). A central reference point of our review is a seminal paper by James Flavell, who introduced the term metacognition (“cognition about cognition”). In a way, every psychotherapeutic approach adopts a metacognitive perspective when therapists reflect with clients about their thoughts. Yet, the four approaches map onto different components of metacognition. CBTp conveys some “metacognitive knowledge” (eg, thoughts are not facts) but is mainly concerned with individual beliefs. Metacognitive therapy focuses on unhelpful metacognitive beliefs about thinking styles (eg, thought suppression). Metacognitive training brings distorted cognitive biases to the awareness of patients; a central goal is the reduction of overconfidence. MERIT focuses on larger senses of identity and highlights metacognitive knowledge about oneself and other persons. For CBTp and metacognitive training, meta-analytic evidence supports their efficacy; single studies speak for the effectiveness of MERIT and metacognitive therapy.

© 2019, AICH – Servier Group

*Dialogues Clin Neurosci.* 2019;21(3):309-317. doi:10.31887/DCNS.2019.21.3/smoritz

**Keywords:** metacognition; psychosis; schizophrenia; cognitive-behavioral therapy; metacognitive therapy; metacognitive training

## Introduction

Most contemporary psychotherapies have the term “cognitive” in their name, either alone or as a prefix or suffix, as in cognitive-behavioral therapy (CBT) and metacognitive therapy. This complicates differentiation for patients who seek special treatments, but at times also confuses experts. Seemingly subtle terminological differences often hide considerable diversity. For example, cognitive training is very different from cognitive therapy; the former means neurocog-

nitive rehabilitation, the latter is a core component of CBT. The situation has become even more complicated with the emergence of a so-called third wave of CBT including metacognitive interventions, which are at the center of this review.

This review will discuss differences and similarities among four prominent cognitive treatment approaches in schizophrenia: CBT for psychosis (CBTp),<sup>1</sup> metacognitive therapy,<sup>2</sup> metacognitive training<sup>3</sup> and metacognitive reflection insight therapy (MERIT).<sup>4</sup> We will summarize the central charac-

**Author affiliations:** Department of Psychiatry and Psychotherapy, University Medical Center Hamburg-Eppendorf, Hamburg, Germany (Steffen Moritz); Department of Psychiatry and Psychotherapy, Lübeck University, Lübeck, Germany (Jan Philipp Klein); Department of Psychiatry, Roudebush VA Medical Center, Indiana University School of Medicine, Indianapolis, IN, US (Paul H. Lysaker); Department of Psychiatry and Psychotherapy, Philipps-University Marburg, Germany; Department of Health and Social Work, Frankfurt University of Applied Science Frankfurt, Germany (Stephanie Mehl). **Address for correspondence:** Steffen Moritz, PhD, Department of Psychiatry and Psychotherapy, University Medical Center Hamburg-Eppendorf, Hamburg, Germany. (email: moritz@uke.de)

# Original article

Psychosis: metacognitive and cognitive-behavioral interventions - *Moritz et al*

teristics of these therapies as well as the latest evidence for their efficacy. A central reference point of our review is the seminal paper by James H. Flavell from 1979<sup>5</sup> who introduced the term metacognition (“cognition about cognition” or “thinking about thinking”). In a way, most psychotherapeutic interventions adopt a metacognitive approach as therapists reflect with their patient about their cognitions and associated feelings (eg, memories relating to prior negative experiences, coping strategies) and try to alter unhelpful thoughts and beliefs. As two of us have speculated before,<sup>6</sup> if the word metacognitive had been around earlier, CBT may have already been termed metacognitive-behavioral therapy. Metacognition is a multifaceted concept, and the seeming similarity in labels should not obscure the fact that the four treatments map onto different aspects of the construct, or at least emphasize different aspects of metacognition.

## Metacognition

As mentioned above, each psychotherapy involves thinking/reflecting about thinking/thoughts. Metacognition is a superordinate concept that was put forward in the 1970s but actually looks back at a longer history. Prior terms were “cognizing about cognition” (Plato) or “knowledge about knowledge.”<sup>7</sup> Flavell<sup>5</sup> was the first to define its essential components, which were later complemented by other theorists, for example Asher Koriat.<sup>8,9</sup> Flavell distinguished four aspects of metacognition: (i) metacognitive knowledge; (ii) metacognitive experiences; (iii) metacognitive goals (or tasks); and (iv) metacognitive actions (or strategies). In this review, we will mainly deal with the two former. Flavell defines metacognitive knowledge as stored world knowledge that has to do with people as cognitive beings and with their diverse cognitive tasks, goals, actions, and experiences.<sup>5</sup> Metacognitive knowledge can relate to persons (eg, “the British think they are funnier than other nations”), oneself (eg, “I am good at statistics”) as well as others, but can also be beliefs about “universal properties of cognition” (p 907). An example of the latter would be “evil thoughts can lead to evil actions.” Metacognitive experiences are conscious reflections about cognitive processes (eg, worrying that others have found you boring at last night's party).

## Cognitive and metacognitive approaches to the treatment of schizophrenia have a growing evidence base demonstrating their efficacy

## Cognitive behavior therapy for psychosis

Cognitive behavior therapy for psychosis (CBTp)<sup>1,10-12</sup> is the approach with the longest history and the largest evidence base.<sup>13</sup> CBTp amalgamates elements from behavioral therapy and the so-called second or “cognitive wave,” and increasingly incorporates elements originated from the “third wave” of CBT.<sup>14</sup> Manuals differ as to the weight and execution of these elements. Yet, there is a consensus about core elements that are defined by the National Institute for Health and Care Excellence (NICE) guidelines<sup>15</sup>: (i) establishing links between patients' thoughts, feelings, or actions and their current or past symptoms and their functioning; (ii) re-evaluation of patients' perceptions, beliefs, or reasoning related to the symptom; (iii) monitoring of thoughts, feelings, or behaviors related to symptoms; and (iv) promoting alternative ways of coping with symptoms, reducing distress, and improving functioning.

The first CBTp manuals aimed at changing psychotic symptoms directly by using cognitive interventions such as identification of automatic thoughts (“I might be followed by the FBI”) and their re-evaluation. In addition, behavioral interventions were implemented, particularly developing new adaptive coping strategies for distressing symptoms and positive activities. Exposure, a central element of CBT in general, is usually performed in a more gentle way in psychosis as “reality testing”: patients are motivated to test unrealistic automatic thoughts that evoke fear (“other people will hear my thoughts”). Further, graded and prolonged exposure were introduced as a regular part of interventions for patients with psychosis who displayed additional comorbid anxiety or posttraumatic stress disorders, and proved effective in terms of reducing psychotic and post-traumatic stress disorder symptoms.<sup>16</sup>

Whereas traditional CBTp interventions focus on symptom change, third-wave CBTp interventions aim to promote the acceptance of symptoms as in Acceptance and Commitment therapy,<sup>17</sup> and to address negative thoughts and emotions by using strategies such as mindfulness,<sup>18</sup> exposure to negative emotions, and imagination techniques including compas-

# Original article

Psychosis: metacognitive and cognitive-behavioral interventions - *Moritz et al*

sionate mind training.<sup>19</sup> In addition, these third-wave interventions focus on achieving life goals and recovery.

CBT also adopts a metacognitive perspective in the sense that therapists and patients discuss and challenge negative thoughts and maladaptive beliefs. CBT conveys metacognitive knowledge, particularly that thoughts are thoughts and should not be regarded as facts. Moreover, CBT shows that there is no universal way to respond to a certain situation (eg, failing an exam) emotionally (eg, anger, frustration); situations/events can be appraised and coped with in different ways.

CBTp is strongly recommended in all phases of psychotic disorders by many national guidelines, for example by the British NICE guidelines,<sup>15</sup> and the German Society of Psychologists guidelines (DGPs)<sup>20</sup> as well as the German Society of Psychiatrists (DGPPN) guidelines.<sup>21</sup>

Most meta-analyses assert the efficacy of CBTp compared with treatment as usual (TAU) and identified a small to medium effect in favor of CBTp with regard to positive symptoms like hallucinations,<sup>22</sup> general symptoms, and social functioning.<sup>23,24</sup> Further, there is evidence that CBTp is efficient in patients who choose not to take antipsychotic medication.<sup>25</sup> Its effects on prodromal/at-risk patients have become somewhat more elusive over the years.<sup>26,27</sup>

Usually, CBTp encompasses four to 30 sessions, and the effects are best if at least 20 sessions are administered.<sup>28</sup> One recent meta-analysis was published by one of us<sup>29</sup> and showed that CBTp exerts a small effect on delusions. This meta-analysis was criticized by Laws,<sup>30</sup> who reanalyzed the data and argues that the effect of CBTp on change in delusions is not stable over a follow-up period of 18 months. Indeed, it seems important to search for ways to stabilize effects over time.

Daniel Freeman and Philippa Garety argue that we should concentrate less on changing delusions directly, but should instead target factors that might cause delusions such as worrying and reasoning biases<sup>31-33</sup> the latter is a core aim of metacognitive training, which will be discussed later.

## Metacognitive therapy

Metacognitive therapy has been developed by Adrian Wells and colleagues and has mainly been evaluated in anxiety and

depression.<sup>34-36</sup> This approach assumes that mental disorders are linked to the activation of a “toxic style” of thinking called the cognitive attentional syndrome (CAS), which locks individuals in emotional states that would otherwise be temporary (sadness, anxiety, anger, etc). The main features of this cognitive style are: (i) worry and rumination; (ii) threat monitoring; and (iii) dysfunctional coping behaviors. The model assumes that the CAS is maintained by dysfunctional metacognitive beliefs such as “rumination helps me find answers to my problems.”

The model is transdiagnostic in nature; the CAS in psychosis is similar to that in other mental disorders. Paranoid thinking is likened to the process of worrying: a series of “what if” questions (“what if the FBI is behind me?”). These questions are perhaps more bizarre than for example in anxiety disorder (“what if I had cancer?”) but are essentially similar. The response to hallucinatory experiences is comparable to the process of rumination in depression: these patients ruminate about why they feel depressed, patients with psychosis ruminate about why they are hearing these voices and who is orchestrating the phenomena.

These examples highlight the transdiagnostic nature of metacognitive therapy. Formulating the CAS can help the patient understand that dysfunctional cognitive strategies are the maintaining factor for paranoid thinking and hallucinatory experiences. As mentioned, the CAS itself is maintained by dysfunctional metacognitions. These can be divided into positive and negative metacognitions. Positive metacognitions concern the perceived usefulness of worry and rumination (“if I worry about the FBI following me, I can prevent them from catching me”). Negative metacognitions are focusing on perceived uncontrollability (“it bothers me that I cannot stop thinking about why my voices occur”) or the perceived danger of cognitions (“if I keep on worrying about this I will totally lose control”).

The goal of metacognitive therapy is to increase cognitive flexibility, modify metacognitive beliefs, and decrease the CAS (eg, reduction of dysfunctional coping strategies). Strategies can be divided into experiential strategies (eg, practising detached mindfulness, ie, letting go of an experience rather than trying to change or control it) and knowledge-based strategies (eg, challenging metacognitive beliefs). These strategies go hand in hand as shown in the following example. A woman was suffering from command hallucinations that told

# Original article

Psychosis: metacognitive and cognitive-behavioral interventions - *Moritz et al*

her to harm members of her family. Her trigger thought was “what if the voices can make me kill my children?” (Note how the focus of the conceptualization is not the content of the voices but how the patient reacts to them). She worried continuously about these voices. Her worries were maintained by the metacognitive belief “my loved ones will only be safe if I worry.” The patient avoided reading bedtime stories to her children because she believed that she would kill her son if she did so (dysfunctional coping behavior). In sessions, she trained in detached mindfulness with her therapist, who showed her to react more flexibly to the auditory hallucinations by switching between engaging and disengaging from the experience. This experience somewhat reduced her metacognitive beliefs and she started reading bedtime stories to her son again.

To date, one multiple baseline study ( $N = 3$ )<sup>37</sup> and one case series ( $N = 10$ ) have demonstrated the effectiveness of up to twelve sessions of metacognitive therapy in medication-resistant patients with schizophrenia spectrum disorder with a large pre- to posteffect size.<sup>38</sup> For other mental disorders the efficacy of metacognitive therapy is well-proven.<sup>34,39</sup>

## Metacognitive training for psychosis

In the last years, metacognitive training has been adapted for a number of disorders including bipolar disorder, obsessive-compulsive disorder, and depression as well as borderline personality disorder. The treatment, however, was first developed for psychosis and intended as a translational approach aimed at “straightening” cognitive distortions. Metacognitive training was largely inspired by a 1999 review on cognitive factors in paranoia<sup>40</sup> which highlighted the role of data gathering/jumping to conclusions (JTC), theory of mind/social cognition and attributional style. The authors also translated their own research pertaining to a bias against disconfirmatory evidence<sup>41</sup> and overconfidence<sup>42</sup> into some modules. An overarching theme of metacognitive training is to convince patients to gather more information, that is, to diminish a JTC bias, and to reduce overconfidence in errors, especially for momentous decisions.<sup>3</sup> Importantly, awareness of these biases is often poor in patients.<sup>43,44</sup> The metacognitive aspect that sets apart metacognitive training from the other approaches described in this review is the attenuation of overconfidence (ie, “sowing the seeds of doubt”) which according to the metacognitive model of Koriat<sup>9</sup> and others represents a central element of metacognition (see also ref 45).

Yet, like CBT (eg, a thought is a thought and not a fact) and metacognitive therapy (eg, rumination does not help to solve problems) metacognitive training also conveys some metacognitive knowledge by raising metacognitive awareness for cognitive biases. The training is aimed to correct errors in a gentle, non-confrontational manner that gives rise to memorable metacognitive experiences (“aha moments”) that Flavell already introduced.

Over the years, metacognitive training has been translated into various languages (currently 37) and complemented by other treatment techniques. While the authors of metacognitive training dispute the general claim by Capobianco and Wells<sup>46</sup> that the “intervention is clearly a cognitive behavioral approach that deals with the content of negative thoughts” (p 161), it is true that its most recent modules on depression and self-esteem have a CBTp signature and metacognitive training can thus be considered a variant of CBTp. These modules were introduced because patients with schizophrenia regard work on emotional problems as a top priority that is weighted as more important than work on positive symptoms.<sup>47-49</sup> Some modules contain exercises that are used in metacognitive therapy as well (eg, demonstrating the dysfunctionality of thought suppression with the “pink elephant exercise,” which however is older than metacognitive therapy and often carried out in CBT). Metacognitive training is perhaps the most heterogeneous of all approaches and the authors have hence begun to explore the specific contribution of individual modules.<sup>50</sup>

Metacognitive training is now recommended as a treatment for psychosis by the Australian Psychiatric Association<sup>51</sup> as well as the German Psychiatric Association (DGPPN)<sup>21</sup> and the German Psychological Association (DGPs).<sup>20</sup> Several meta-analyses on its effectiveness have been published over the years. The two most recent ones<sup>39,52</sup> show that the training exerts a small to medium effect on symptoms when compared to other interventions (pooled effect). Adherence is usually good, and patients prefer the training over other forms of treatment at a large effect size.<sup>53</sup> The study by Liu et al<sup>52</sup> also suggest that the effects are maintained over a follow-up period. Several changes have been introduced over the years to enhance effects, for example, the development of parallel versions. Patients are now advised to participate in at least two cycles. Further, the individualized format (MCT+) allows greater consideration of personal problems. To maintain treatment success

# Original article

Psychosis: metacognitive and cognitive-behavioral interventions - *Moritz et al*

in the long run an app has been developed which can be downloaded free of charge via [www.uke.de/mct\\_app](http://www.uke.de/mct_app) in German and English (iOS and Android). The app can be used to assist metacognitive training for mental disorders beyond psychosis and a beta version has recently been successfully tested in depressed patients.<sup>54</sup>

## Metacognitive insight and reflection therapy

The term schizophrenia originally described psychotic disorders as conditions in which goal-directed behavior collapses because of the fragmentation or loss of coherence of three principle areas of psychological functions: cognition, emotion, and volition.<sup>55</sup> MERIT<sup>56</sup> is a treatment designed to address these experiences of fragmentation. MERIT relies on the integrated model of metacognition<sup>57</sup> which uses the term metacognition to describe both the top-down and bottom-up processes which allow for the elements of cognitive, emotional, social and embodied experience to be synthesized into a larger sense of self within the flow of life. When metacognitive processes are disrupted, persons become unable to integrate information in order to form a larger sense of the self and others, leading to the kinds of fragmented experience originally thought to be the core of psychosis. Evidence supporting these views includes cross-cultural studies documenting relatively pronounced greater metacognitive deficits in persons diagnosed with psychosis and association between metacognitive deficits with concurrent and future levels of psychosocial impairment.<sup>58-60</sup>

MERIT seeks to treat fragmentation by enhancing metacognitive capacity or the ability to integrate information about the self and others. The development of metacognitive capacity is presumed to promote recovery when enhanced metacognitive capacities allow persons to achieve greater levels of intimacy with others, to form their own sense of the psychosocial challenges they face, and ultimately direct their own recovery as active agents in the world.<sup>61</sup> MERIT is an integrative individual psychotherapy that can flexibly meet the needs of patients with different goals, challenges, and abilities with the optimal length of treatment varying given the severity of metacognitive deficits. MERIT assumes that the use of a single approach is unlikely to be able to be fully responsive given the complexity of the experience of psychosis.

To enhance metacognition, MERIT relies on eight processes, referred to as elements, which therapists should engage in

within each session. These elements are observable interrelated therapist behaviors which together are intended to help patients become better able to observe and integrate their experience of themselves and others in the world. These processes are consistent with the common factors of psychotherapy and can be deployed by therapists from different theoretical orientations.

The eight elements of MERIT are divided into three groups. The first four, the content elements, require explicit attention to; (i) the development of a joint understanding of patients' agendas, (ii) ongoing therapeutic dialogue; (iii) patients' narratives; and (iv) psychosocial challenges. The next two, the process elements, require: (v) reflection on the interpersonal processes within session; and (vi) consideration of the session's effects on patients' cognitive and emotional and embodied experience within the session. The last two elements, the superordinate elements, necessitate therapist interventions that match patients' metacognitive capacity for: (vii) reflection about the self and others; and (viii) metacognitive mastery or the ability to use metacognitive knowledge to respond effectively to psychosocial challenges.<sup>56</sup> MERIT, consistent with CBTp, emphasizes the development of the therapeutic alliance and reflection upon patients' experience of their feelings and thoughts. It moves beyond these common aspects in its holistic consideration of how embodied and prereflective experience are integrated intersubjectively within session, alongside more effortful forms of cognition, to allow persons to make their own unique sense of their challenges and to respond as agents

Evidence supporting MERIT includes two randomized, controlled trials, lasting 8 and 6 months respectively, which reported that MERIT was accepted by over two-thirds of patients and led to meaningful gains.<sup>62,63</sup> Similar findings were reported in a 12-week open trial of MERIT<sup>64</sup> and a 1- to 2-year course of metacognitively focused psychotherapy which conformed to MERIT.<sup>65</sup> A long term follow-up conducted among participants of the latter study found gains in metacognition and psychosocial functioning persisted over 3 years.<sup>66</sup> Qualitative studies have found MERIT results in subjective changes in sense of self-related to enhanced agency and self-management.<sup>67,68</sup> Detailed case studies have illustrated how MERIT can be applied to patients with complex clinical presentations including patients with complaints commonly thought to be intractable including negative symptoms, disorganization, and lack of insight.<sup>69</sup>

# Original article

Psychosis: metacognitive and cognitive-behavioral interventions - *Moritz et al*

## Shared and unspecific factors deserve greater consideration

Developers of psychotherapeutic treatments often highlight (allegedly) unique features of a treatment (eg, reduction of confidence in metacognitive training, mindfulness in mindfulness-based treatments) and at times evoke the impression as if these features were the main mechanisms of change. Yet, different psychotherapeutic “schools” share numerous common factors. If psychotherapy was a pharmacological agent it would be best characterized as a “dirty drug,” that is, a substance with very different modes of action. At the same time, treatments with the same label may be carried out very differently. A CBTp treatment according to the model of Freeman and Garety,<sup>32,33</sup> which, as shown, highlights reasoning and worrying will be different than a treatment according to the first CBTp textbooks (see above). Different treatment approaches allow therapists different degrees of freedom and standardization is thus often poor.

Some of the features shared by psychotherapies go unmentioned as they seem trivial. However, since they may contribute to the overall efficacy of a treatment they deserve greater consideration.<sup>70</sup> Implicit and sometimes explicit to all psychotherapeutic treatments for psychosis is the suggestion that a severe disorder like schizophrenia can be psychologically understood and treated thus instill patients with hope, especially if therapists point out evidence for the efficacy of a specific treatment. The extent to which efficacy/hope is conveyed to participants versus potential adverse effects are disclosed is seldom reported in trials, although we know that, for example, expectancy enhances efficacy.<sup>71</sup> Some treatments, at least CBTp, metacognitive training, and individualized metacognitive training (MCT+) but not group metacognitive training, provide the patient with an individual illness model, sometimes a difficult task in light of patients’ delusional explanations for their problems and their often poor level of insight. The dosage of therapy in terms of format (group, individual, unguided), number of sessions, and also competence of the facilitator represent other important moderators that hinder direct comparison among treatments, even those with the same label. While metacognitive therapy, CBTp, and MERIT should be conducted by psychotherapists who have followed a special curriculum for the technique, this is not a precondition for metacognitive training/MCT+. Metacognitive therapy and metacognitive training are usually brief (8 to 10 sessions) while CBTp is recommended to be

conducted for at least 16 to 25 sessions<sup>72</sup> in most intervention studies (however, the CBTp studies by Freeman and Garety cited above often use 4 to 6 sessions), which may impact outcome but also applicability in routine care with often short hospital stays and staff that is not specialized for a certain treatment approach.

It is beyond the scope of this review, but it may be useful for future work, to explicitly describe therapeutic techniques in a manner that is analogous to chemical formulae in order to allow to the detection of whether a therapeutic feature is present or not. This may also help to distinguish among trials that evaluate the same intervention but with variations (eg, length, weighting of elements).

The overlap in terms of additional procedures (eg, psychoeducation, illness model) may also be a reason why there is some obvious reluctance to conduct trials that compare the treatments highlighted in this review. Non-inferiority is by no means unlikely – however, see ref 73 – even more so as many patients receive concomitant treatment either applied face-to-face or via self-help material that is increasingly available for schizophrenia too.

## Conclusion

As shown, the psychotherapeutic methods covered in this review all have a metacognitive feature. The unique features are perhaps best summarized as follows: Metacognitive therapy takes a transdiagnostic approach; treatment for patients with schizophrenia is essentially not much different to treatment for patients with other disorders. The treatment focuses on false or unhelpful (positive or negative) beliefs people hold about rumination and worrying processes (metacognitive knowledge). It is perhaps the most explicit on what to do during treatment and what not to do (usually no work on personal idiosyncratic beliefs or thoughts is encouraged). Metacognitive training aims at bringing distorted mental processes (cognitive biases) to the awareness of patients and triggering change through new metacognitive (“aha”) experiences. Progress is made through an attenuation of overconfidence.<sup>74</sup> CBTp also has some metacognitive knowledge “mantras” (thoughts are thoughts and not facts) but is mainly concerned with idiosyncratic (schematic) dysfunctional beliefs that metacognitive therapy for example avoids to address by all means. As shown, it is the treatment with the largest number of

# Original article

Psychosis: metacognitive and cognitive-behavioral interventions - Moritz et al

studies to date. MERIT focuses on larger senses of identity and especially metacognitive knowledge about oneself and other persons. Like CBTp, it is more a toolbox than a standardized treatment. The treatment depends largely on patients' preferences and goals, thus ultimately limiting standardization. Two CBTp and MERIT therapists may work differently with the same patient.

All treatments have a growing basis of evidence demonstrating efficacy, especially CBTp and metacognitive training, but studies show that metacognitive therapy and MERIT also seem to improve symptoms of psychosis. Despite many unique features that set these approaches apart, their common factors need more extensive consideration in the future. In addition, it is interesting to assess which therapeutic elements

drive change. Subsequent research needs to address which elements are perhaps disposable, whether a certain treatment sequence is especially helpful, and which modules/exercises are perhaps redundant. ■

**Disclosure/Acknowledgements:** Steffen Moritz is a developer of metacognitive training, which may be viewed as a conflict of interest. Jan Philipp Klein received funding for clinical trials (German Federal Ministry of Health, Servier), payments for presentations on internet interventions (Servier), payments for workshops and books (Beltz, Elsevier, Hogrefe and Springer) on psychotherapy for chronic depression and on psychiatric emergencies. Paul H. Lysaker and Stephanie Mehl declare that they have no conflict of interest.

## References

1. Fowler D, Garety P, Kuipers E. *Cognitive Behaviour Therapy for Psychosis: Theory and Practice*. Chichester, UK: Wiley; 1995.
2. Fisher P, Wells A. *Metacognitive Therapy*. Sussex, UK: Routledge; 2009.
3. Moritz S, Andreou C, Schneider BC, et al. Sowing the seeds of doubt: A narrative review on metacognitive training in schizophrenia. *Clin Psychol Rev*. 2014;34(4):358-366. doi:10.1016/j.cpr.2014.04.004.
4. Hillis JD, Leonhardt BL, Vohs JL, et al. Metacognitive reflective and insight therapy for people in early phase of a schizophrenia spectrum disorder. *J Clin Psychol*. 2015;71(2):125-135. doi:10.1002/jclp.22148.
5. Flavell JH. Metacognition and cognitive monitoring: a new area of cognitive-development inquiry. *Am Psychol*. 1979;34(10):906-911. doi:10.1037/0003-066X.34.10.906.
6. Moritz S, Lysaker PH. Metacognition – What did James H. Flavell really say and the implications for the conceptualization and design of metacognitive interventions. *Schizophr Res*. 2018;201:20-26. doi:10.1016/j.schres.2018.06.001.
7. Tulving E., Madigan S. Memory and verbal learning. *Annu Rev Psychol*. 1970;21(1):437-484. doi:10.1146/annurev.ps.21.020170.002253.
8. Koriat A, Levy-Sadot R. Processes underlying metacognitive judgments: Information-based and experience-based monitoring of one's own knowledge. In: Chaiken S, Trope Y, eds. *Dual Process Theories in Social Psychology*. New York, NY: Guilford; 1999:483-502.
9. Koriat A. Metacognition research: An interim report. In: Perfect TJ, Schwartz BL, eds. *Applied Metacognition*. Cambridge, UK: Cambridge University Press; 2002:261-286.
10. Chadwick P, Birchwood M, Trower P. *Cognitive Behaviour Therapy for Delusions, Voices and Paranoia*. Chichester, UK: Wiley; 1996.
11. Kingdon D, Turkington D. *Cognitive Behavioral Therapy of Schizophrenia*. Hove, UK: Lawrence Erlbaum Associates; 1994.
12. Morrison A, Renton J, Dunn H, Williams S, Bentall R. *Cognitive Therapy for Psychosis: A Formulation-Based Approach*. New York, NY: Routledge; 2004.
13. Bighelli I, Salanti G, Huhn M, et al. Psychological interventions to reduce positive symptoms in schizophrenia: systematic review and network meta-analysis. *World Psychiatry*. 2018;17(3):316-329. doi:10.1002/wps.20577.
14. Wright NP, Turkington D, Kelly OP, Davies D, Jacobs AM, Hopton J. *Treating Psychosis: A Clinician's Guide to Integrating Acceptance and Commitment Therapy, Compassion-Focused Therapy and Mindfulness Approaches within the Cognitive Behavioral Therapy Tradition*. Oakland, CA: New Harbinger; 2014.
15. National Institute for Health and Clinical Excellence. *2019 Exceptional Surveillance of Psychosis and Schizophrenia in Adults: Prevention and Management (NICE Guideline CG178)*. London, UK: National Institute for Health and Clinical Excellence; 2019.
16. van den Berg DPG, de Bont PAJM, van der Vleugel BM, et al. Prolonged exposure vs eye movement desensitization and reprocessing vs waiting list for posttraumatic stress disorder in patients with a psychotic disorder. *JAMA Psychiatry*. 2015;72(3):259-267. doi:10.1001/jama-psychiatry.2014.2637.
17. Morris E, Johns L, Oliver J. *Acceptance and Commitment Therapy and Mindfulness for Psychosis*. London, UK: Wiley; 2013.
18. Chadwick P. *Person-Based Cognitive Therapy for Distressing Psychosis*. London: Wiley; 2006.
19. Mayhew SL, Gilbert P. Compassionate mind training with people who hear malevolent voices: a case series report. *Clin Psychol Psychother*. 2008;15(2):113-138. doi:10.1002/cpp.566.
20. Lincoln T, Pedersen A, Hahlweg K, Wiedl K-H, Frantz I. *Evidenzbasierte Leitlinie zur Psychotherapie von Schizophrenie und anderen psychotischen Störungen [Evidence-Based Guideline for the Psychotherapy of Schizophrenia and Other Psychotic Disorders]*. Göttingen, Germany: Hogrefe; 2019.
21. Gaebel W, Alkomiet H, Falkai P. *S3-Leitlinie Schizophrenie*. Berlin, Germany: Springer; 2019.
22. van der Gaag M, Valmaggia LR, Smit F. The effects of individually tailored formulation-based cognitive behavioural therapy in auditory hallucinations and delusions: A meta-analysis. *Schizophr Res*. 2014;156(1):30-37. doi:10.1016/j.schres.2014.03.016.
23. Wykes T, Steel C, Everitt B, Tarrrier N. Cognitive behavior therapy for schizophrenia: Effect sizes, clinical models, and methodological rigor. *Schizophr Bull*. 2008;34(3):523-537. doi:10.1093/schbul/sbm114.
24. Turner DT, Van Der Gaag M, Karyotaki E, Cuijpers P. Psychological interventions for psychosis: A meta-analysis of comparative outcome studies. *Am J Psychiatry*. 2014;171(5):523-538. doi:10.1176/appi.ajp.2013.13081159.
25. Morrison AP, Turkington D, Pyle M, et al. Cognitive therapy for people with schizophrenia spectrum disorders not taking antipsychotic drugs: a single-blind randomised controlled trial. *Lancet*. 2014;383(9926):1395-1403. doi:10.1016/S0140-6736(13)62246-1.

# Original article

Psychosis: metacognitive and cognitive-behavioral interventions - Moritz et al

26. Hutton P, Taylor PJ. Cognitive behavioural therapy for psychosis prevention: A systematic review and meta-analysis. *Psychol Med*. 2014;44(3):449-468. doi:10.1017/S0033291713000354.
27. Davies C, Cipriani A, Ioannidis JPA, et al. Lack of evidence to favor specific preventive interventions in psychosis: a network meta-analysis. *World Psychiatry*. 2018;17(2):196-209. doi:10.1002/wps.20526.
28. Sarin F, Wallin L, Widerlöv B. Cognitive behavior therapy for schizophrenia: A meta-analytical review of randomized controlled trials. *Nord J Psychiatry*. 2011;65(3):162-174. doi:10.3109/08039488.2011.577188.
29. Mehl S, Werner D, Lincoln TM. Does Cognitive Behavior Therapy for psychosis (CBTp) show a sustainable effect on delusions? A meta-analysis. *Front Psychol*. 2015;6:1450. doi:10.3389/fpsyg.2015.01450.
30. Laws KR. Commentary: Does Cognitive Behavior Therapy for psychosis (CBTp) show a sustainable effect on delusions? A meta-analysis. *Front Psychol*. 2016;7:59. doi:10.3389/fpsyg.2016.00059.
31. Waller H, Emsley R, Freeman D, et al. Thinking Well: A randomised controlled feasibility study of a new CBT therapy targeting reasoning biases in people with distressing persecutory delusional beliefs. *J Behav Ther Exp Psychiatry*. 2015;48:82-89. doi:10.1016/j.jbtep.2015.02.007.
32. Garety PA, Freeman D. The past and future of delusions research: From the inexplicable to the treatable. *Br J Psychiatry*. 2013;203(5):327-333. doi:10.1192/bjp.bp.113.126953.
33. Freeman D. Persecutory delusions: a cognitive perspective on understanding and treatment. *Lancet Psychiatry*. 2016;3(7):685-692. doi:10.1016/S2215-0366(16)00066-3.
34. Normann N, Van Emmerik AAP, Morina N. The efficacy of metacognitive therapy for anxiety and depression: A meta-analytic review. *Depress Anxiety*. 2014;31(5):402-411. doi:10.1002/da.22273.
35. Wells A. *Metacognitive Therapy for Anxiety and Depression*. New York: Guilford Press; 2009.
36. Wells A, Fisher PL. Metacognitive therapy: theoretical background and model of depression. In: Wells A, Fisher PL, eds. *Treating Depression: MCT, CBT, and Third Wave Therapies*. Chichester (UK): John Wiley & Sons; 2016:144-168.
37. Hutton P, Morrison AP, Wardle M, Wells A. Metacognitive therapy in treatment-resistant psychosis: a multiple-baseline study. *Behav Cogn Psychother*. 2014;42(2):166-185. doi:10.1017/S1352465812001026.
38. Morrison AP, Pyle M, Chapman N, French P, Parker SK, Wells A. Metacognitive therapy in people with a schizophrenia spectrum diagnosis and medication resistant symptoms: a feasibility study. *J Behav Ther Exp Psychiatry*. 2014;45(2):280-284.
39. Philipp R, Kriston L, Lanio J, et al. Effectiveness of metacognitive interventions for mental disorders in adults—A systematic review and meta-analysis (METACOG). *Clin Psychol Psychother*. 2019;26(2):227-240. doi:10.1002/cpp.2345.
40. Garety PA, Freeman D. Cognitive approaches to delusions: a critical review of theories and evidence. *Br J Clin Psychol*. 1999;38:113-154. doi:10.1348/014466599162700.
41. Woodward TS, Moritz S, Cuttler C, Whitman JC. The contribution of a cognitive bias against disconfirmatory evidence (BADE) to delusions in schizophrenia. *J Clin Exp Neuropsychol*. 2006;28(4). doi:10.1080/13803390590949511.
42. Moritz S, Woodward TS. Metacognitive control over false memories: A key determinant of delusional thinking. *Curr Psychiatry Rep*. 2006;8(3):184-190. doi:10.1007/s11920-006-0022-2.
43. Freeman D, Garety P, Kuipers E, et al. Delusions and decision-making style: Use of the Need for Closure Scale. *Behav Res Ther*. 2006;44(8):1147-1158. doi:10.1016/j.brat.2005.09.002.
44. Moritz S, Balzan RP, Bohn F, et al. Subjective versus objective cognition: Evidence for poor metacognitive monitoring in schizophrenia. *Schizophr Res*. 2016;178(1-3):74-79. doi:10.1016/j.schres.2016.08.021.
45. Yeung N, Summerfield C. Metacognition in human decision-making: confidence and error monitoring. *Philos Trans R Soc B Biol Sci*. 2012;367(1594):1310-1321. doi:10.1098/rstb.2011.0416.
46. Capobianco L, Wells A. Letter to the editor: Metacognitive therapy or metacognitive training: What's in a name? *J Behav Ther Exp Psychiatry*. 2018;59:161. doi:10.1016/j.jbtep.2017.12.003.
47. Byrne R, Davies L, Morrison AP. Priorities and preferences for the outcomes of treatment of psychosis: A service user perspective. *Psychosis*. 2010;2(3):210-217. doi:10.1080/17522430903456913.
48. Kuhnigk O, Slawik L, Meyer J, Naber D, Reimer J. Valuation and attainment of treatment goals in schizophrenia: perspectives of patients, relatives, physicians, and payers. *J Psychiatr Pract*. 2012;18(5):321-328. doi:10.1097/01.pra.0000419816.75752.65.
49. Moritz S, Berna F, Jaeger S, Westermann S, Nagel M. The customer is always right? Subjective target symptoms and treatment preferences in patients with psychosis. *Eur Arch Psychiatry Clin Neurosci*. 2017;267(4):335-339. doi:10.1007/s00406-016-0694-5.
50. Schneider BC, Cludius B, Lutz W, Moritz S, Rubel JA. An investigation of module-specific effects of Metacognitive Training for Psychosis. *Z Psychol*. 2018;226(3):164-173. doi:10.1027/2151-2604/a000336.
51. Galletly C, Castle D, Dark F, et al. Royal Australian and New Zealand College of Psychiatrists clinical practice guidelines for the management of schizophrenia and related disorders. *Aust N Z J Psychiatry*. 2016;50(5):410-472. doi:10.1177/0004867416641195.
52. Liu Y-C, Tang C-C, Hung T-T, Tsai P-C, Lin M-F. The efficacy of metacognitive training for delusions in patients with schizophrenia: a meta-analysis of randomized controlled trials informs evidence-based practice. *Worldviews Evidence-Based Nurs*. 2018;15(2):130-139. doi:10.1111/wvn.12282.
53. Eichner C, Berna F. Acceptance and efficacy of metacognitive training (MCT) on positive symptoms and delusions in patients with schizophrenia: a meta-analysis taking into account important moderators. *Schizophr Bull*. 2016;42(4):952-962. doi:10.1093/schbul/sbv225.
54. Lütke T, Pult LK, Schröder J, Moritz S, Bücker L. A randomized controlled trial on a smartphone self-help application (Be Good to Yourself) to reduce depressive symptoms. *Psychiatry Res*. 2018;269:753-762. doi:10.1016/j.psychres.2018.08.113.
55. Bleuler E. *Dementia Praecox or the Group of Schizophrenias*. Published in 1911. (Aschaffenburg G, ed.). Leipzig: Deuticke; 1950.
56. Lysaker PH, Klion R. *Recovery, Meaning-Making, and Severe Mental Illness: A Comprehensive Guide to Metacognitive Reflection and Insight Therapy*. New York, NY: Routledge; 2017.
57. Lysaker PH, Hamm J, Hasson-Ohayon I, Pattison ML, Leonhardt BL. Promoting recovery from severe mental illness: Implications from research on metacognition and Metacognitive Reflection Insight Therapy. *World J Psychiatry*. 2018;8(1):1-11.
58. Bonfils KA, Lysaker PH, Minor KS, Salyers MP. Metacognition, personal distress, and performance-based empathy in schizophrenia. *Schizophr Bull*. 2019;45(1):19-26. doi:10.1093/schbul/sby137.
59. Lysaker PH, Dimaggio G. Metacognitive capacities for reflection in schizophrenia: Implications for developing treatments. *Schizophr Bull*. 2014;40(3):487-491. doi:10.1093/schbul/sbu038.
60. Lysaker PH, Kukla M, Vohs J, Schnackenberg-Martin A, Buck KD, Hasson-Ohayon I. Metacognition and recovery in schizophrenia: From research to the development of Metacognitive Reflection and Insight Therapy. *J Exp Psychopathol*. 2019.
61. Lysaker PH, Minor KS, Lysaker JT, et al. Metacognitive function and fragmentation in schizophrenia: Relationship to cognition, self-experience and developing treatments. *Schizophr Res Cogn*. 2019.
62. Vohs JL, Leonhardt BL, James A V., et al. Metacognitive Reflection and Insight Therapy for early psychosis: A preliminary study of a novel integrative psychotherapy. *Schizophr Res*. 2018;195:428-433. doi:10.1016/j.schres.2017.10.041.
63. de Jong S, van Donkersgoed RJM, Tim-



## Original article

Psychosis: metacognitive and cognitive-behavioral interventions - Moritz et al

- merman ME, et al. Metacognitive reflection and insight therapy (MERIT) for patients with schizophrenia. *Psychol Med*. 2019;49(2):303-313. doi:10.1017/S0033291718000855.
64. de Jong S, van Donkersgoed RJM, Aleman A, et al. Practical implications of metacognitively oriented psychotherapy in psychosis: findings from a pilot study. *J Nerv Ment Dis*. 2016;204(9):713-716. doi:10.1097/NMD.0000000000000564.
65. Bargaquast R, Schweitzer RD. Enhancing sense of recovery and self-reflectivity in people with schizophrenia: A pilot study of Metacognitive Narrative Psychotherapy. *Psychol Psychother Theory, Res Pract*. 2014;87(3):338-356. doi:10.1111/papt.12019.
66. Schweitzer RD, Greben M, Bargaquast R. Long-term outcomes of Metacognitive Narrative Psychotherapy for people diagnosed with schizophrenia. *Psychol Psychother*. 2017;90(4):668-685. doi:10.1111/papt.12132.
67. Lysaker PH, Kukla M, Belanger E, et al. Individual psychotherapy and changes in self-experience in schizophrenia: a qualitative comparison of patients in metacognitively focused and supportive psychotherapy. *Psychiatry*. 2015;78(4):305-316. doi:10.1080/00332747.2015.1063916.
68. de Jong S, Hasson-Ohayon I, van Donkersgoed R, Aleman A, Pijnenborg GHM. A qualitative evaluation of the effects of Metacognitive Reflection and Insight Therapy: 'Living more consciously.' *Psychol Psychother*. 2018. doi:10.1111/papt.12212.
69. Hamm J, Lysaker PH. Integrative metacognitive psychotherapy for serious mental illness: Applications to diverse clinical needs and its processes that promote recovery. *Am J Psychother*. 2018;71(4):122-127.
70. Wampold BE, Mondin GW, Moody M, Stich F, Benson K, Ahn H. A meta-analysis of outcome studies comparing bona fide psychotherapies: Empirically, "all must have prizes." *Psychol Bull*. 1997;122(3):203-215. doi:10.1037/0033-2909.122.3.203.
71. Westra HA, Dozois DJA, Marcus M. Expectancy, homework compliance, and initial change in cognitive-behavioral therapy for anxiety. *J Consult Clin Psychol*. 2007;75(3):363-373. doi:10.1037/0022-006X.75.3.363.
72. Lincoln TM, Jung E, Wiesjahn M, Schlier B. What is the minimal dose of cognitive behavior therapy for psychosis? An approximation using repeated assessments over 45 sessions. *Eur Psychiatry*. 2016;38:31-39. doi:10.1016/j.eurpsy.2016.05.004.
73. Marcus DK, O'Connell D, Norris AL, Sawaqdeh A. Is the Dodo bird endangered in the 21st century? A meta-analysis of treatment comparison studies. *Clin Psychol Rev*. 2014;34(7):519-530. doi:10.1016/j.cpr.2014.08.001.
74. Köther U, Vettorazzi E, Veckenstedt R, et al. Bayesian analyses of the effect of Metacognitive Training on social cognition deficits and overconfidence in errors. *J Exp Psychopathol*. 2017;8(2):158-174. doi:10.5127/jep.054516.