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## Metacognition in psychotic disorders

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# CHAPTER 5

## Practical implications of metacognitively oriented psychotherapy in psychosis: findings from a pilot study

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**ABSTRACT**

In preparation for a multicenter randomized controlled trial, a pilot study was conducted investigating the feasibility and acceptance of a shortened version (12 vs. 40 sessions) of an individual metacognitive psychotherapy. Twelve participants with a diagnosis of schizophrenia were offered twelve sessions of Metacognitive Psychotherapy (MERIT). Effect sizes were calculated for changes from baseline to treatment end for metacognitive capacity measured by the Metacognition Assessment Scale–A. Nine out of twelve patients finished treatment. Though, non-significant moderate to large effect sizes were obtained on the primary outcome measure. This study is among the first to suggest patients with schizophrenia will accept metacognitive therapy and provide evidence for improvements in metacognitive capacity. Despite limitations typical to a pilot study, including small sample size and lack of a control group, sufficient evidence of efficacy was obtained to warrant further investigation.

## INTRODUCTION

Metacognitive capacity is one set of psychological processes hypothesized to play a role in the how well persons are able to understand and respond to psychiatric challenges (Lysaker *et al.*, 2011a). Metacognition was originally used within the educational literature and since has been applied to numerous fields of study, including attachment, psychopathology, human development, and cognitive psychology. It can be understood as a spectrum of activities which range from reflection about discrete mental experiences, such as recognizing a specific thought or emotion, to the synthesis of those experiences into integrated representations of self and others as unique agents in the world (Lysaker *et al.*, 2014; 2015). Semerari *et al.*, (2003) suggest that metacognition activities can be distinguished from one another on the basis of their focus on the self, others, the larger world and the use of that knowledge to respond to psychosocial challenges. Stable deficits in metacognition have found in early and late phases of psychotic disorders (Hamm *et al.*, 2012; Vohs *et al.*, 2013) and negatively affect functional outcomes (c.f. Lysaker *et al.*, 2015).

Accordingly, several interventions have been developed to assist persons with schizophrenia to develop or recapture metacognitive capacity. As these are all founded upon the same theoretical basis, there is methodological overlap between methodologies including concern with narrative and intersubjective processes (c.f. Hamm *et al.*, 2013). Examples of these interventions can be found in case studies (e.g. Lysaker and Buck, 2006; Lysaker and Daroyanni, 2006; Lysaker and Gumley, 2010; Lysaker *et al.*, 2007a,b; Salvatore *et al.*, 2009, 2012), and include a group approach focused on social skills training (Ottavi *et al.*, 2014). An open trial of a comparable metacognitive approach

has also been published (Bargenquast and Schweitzer, 2013). Based on these studies, a protocol-based intervention was developed by Lysaker and colleagues, named Metacognitive Reflection and Insight Therapy (MERIT; Van Donkersgoed *et al.*, 2014). MERIT distinguishes itself from comparable interventions such as Metacognitive Interpersonal Therapy for Personality Disorder (Dimaggio *et al.*, 2015) by its explicit recovery orientation, including its emphasis on avoiding stigma, and focus on processes rather than detailed procedures that should be present in each session.

As a precursor to a randomized controlled trial for MERIT (van Donkersgoed *et al.*, 2014), we have conducted a pilot study to answer four questions in order to prepare for an RCT. Specifically, we sought to investigate 1) whether new therapists could be trained in MERIT and what the required level of post-training supervision would be. Secondary, data was gathered in order to 2) estimate the magnitude of clinical gains and so determine the needed sample size for an RCT, 3) determine what the acceptance rate of the therapy would be, and 4) determine whether the intended test battery and its administration was feasible.

Case study work (Lysaker *et al.*, 2007a), along with clinical experience with the methodology, indicated that the first fluctuations in metacognitive capacity should not be expected in a shorter timeframe than three months. As such, the therapy length for the purpose of this pilot study was reduced from 40 to 12 sessions.

## **METHODS**

### **THERAPISTS AND TRAINING**

In order to answer our first question, regarding the feasibility of training therapists in MERIT, three Dutch therapists (SJ, RD, MP) were trained by the author of the treatment manual (PL) in a five-

day training program. Training consisted of one day of theoretical work, focused on the construct of metacognition and the use of the Metacognition Assessment Scale –A (MAS-A; Semerari *et al.*, 2003). This knowledge was tested during a MAS-A consensus meeting the second day, using “gold-standard” transcripts developed specifically for the training and which are included in both the English MAS-A manual as well as the Dutch translation. Third, fourth and fifth days consisted of an expansive discussion of each of the eight MERIT elements, basic casework and roleplay. Sufficient grasp of the therapy method was assessed by performance during this roleplay. Throughout the study, two therapists (SJ and RD) conducted therapy sessions under supervision of MP. Additionally, weekly supervision was conducted via (internet) telephony with PL.

#### **THERAPY PROTOCOL: METACOGNITIVE REFLECTION AND INSIGHT THERAPY (MERIT)**

Developed specifically for psychotic disorders, MERIT seeks to assist persons in raising metacognitive capacity through mutual reflection on patient narratives of life events. Concretely, each session therapists follow eight basic elements. The first element is the therapists’ constant awareness of the agenda of the patient. Agenda here refers to the hopes, wishes, desires plans and purpose the patient brings to the session, both in the longer and shorter term. Patients may have multiple agendas which may continuously evolve during and between sessions (Hillis *et al.*, 2015). The second element involves the therapists respectfully offering their reflections on patient’s thoughts at appropriate moments during the session by offering to provide the participant with their thoughts, without falling into the pitfall of adopting a role or attitude that negates the patient’s position. The third element involves eliciting a narrative episode and the fourth element involves arriving at a mutually

agreed upon psychological problem that the patient is facing. The fifth element of MERIT is reflection on interpersonal processes that occur in session. Element six is reflection on the progress occurring within and between sessions, with the therapist asking the participant about their experience of the session. The seventh element prescribed that interventions that stimulate reflections about the self and other are tailored to the participant's level of metacognitive functioning, as measured by the Metacognition Assessment Scale-A. The eighth element prescribed that interventions that stimulate reflections about Mastery are tailored to the participant's level of metacognitive functioning, as measured by the Metacognition Assessment Scale-A. The eight elements, their theoretical basis (Lysaker *et al.*, 2014a) and the study protocol for the randomized controlled trial (Van Donkersgoed *et al.*, 2014) are discussed elsewhere. The method includes the T-MAS, a method for ongoing therapist self-assessment of their adherence for all of the eight elements.

### **PARTICIPANTS**

In order to answer research question two regarding clinical gains so as to inform the sample size required for a randomized controlled trial, and research question three pertaining the acceptance rate of the therapy, twelve participants were recruited at two mental healthcare institutes in the Netherlands: GGZ Friesland and GGZ Drenthe.

Caseloads were screened for persons with a DSM-IV-TR diagnosis of schizophrenia, the ability to give informed consent, age $\geq$ 18 and no change in medication in the past thirty days. Participants were excluded if there was the presence of acute, severe psychotic symptoms, defined as an average score of 4 or higher on items of the Positive Symptoms scale of the Positive and Negative Syndrome Scale (PANSS; Kay *et al.*, 1987), and if there was mention in the electronic patient file of a co-

morbid neurological disorder, severe substance dependence or an IQ of 70 or below. The case managers of the resulting patients were then asked to answer four screening questions on metacognition. These screening questions were primarily intended as a general indicator of low metacognitive function, and consisted simply of a re-wording of the Metacognition Assessment Scale –Abbreviated (MAS-A; Lysaker *et al.*, 2005) into a self report using a 10 point scale (e.g. “Indicate to what extent the client is able to think about his / her thoughts”). Participants who presented with impaired metacognitive abilities were invited to participate. The sample was predominantly male ( $n = 9$  vs.  $n = 3$ ), with a mean age of 40.8 (SD = 13.8), a median education level of vocational education and an average estimated pre-morbid IQ of 105.7 (SD = 4.6).

## **MATERIALS**

In order to assess clinical gains, as per research question two, metacognition was assessed using the Metacognition Assessment Scale – Abbreviated (MAS-A). The MAS-A is an adaptation of the original Metacognition Assessment Scale (Semerari *et al.*, 2003) created in collaboration with that scale’s authors in order to assess metacognition within personal narratives. The MAS-A contains four subscales: Self-Reflectivity, Understanding the Other’s Mind, Decentration and Mastery. For each subscale, higher ratings reflect the presence of greater capacities for the formation of complex representations of self and others. The MAS-A has consistently demonstrated good psychometric properties (Lysaker *et al.*, 2005a, 2014b). For this study, MAS-A ratings were made pre- and post-therapy on the basis of the Indiana Psychiatric Illness Interview (IPII; Lysaker *et al.*, 2002). IPII interviews conducted prior to and following therapy. MAS-A assessments were performed by independent raters blind to condition (pre- or post-therapy). All raters held at minimum a bachelor’s degree in Psychology (BSc.) and had



successfully completed a 4-hour MAS-A training session delivered by SJ and subsequently attended three consensus meetings as part of the training.

In line with our final question regarding the feasibility of the battery, additional secondary outcome measures were included: symptoms (PANSS; Kay *et al.*, 1987), Theory of Mind (Faux Pas Task; Baron-Cohen *et al.*, 1999) insight (Beck Cognitive Insight Scale; Beck *et al.*, 2004), empathy (Interpersonal Reactivity Index; Davis, 1983), depression (Quick Inventory of Depressive Symptomatology; Rush *et al.*, 2003), internalized stigma (Internalized Stigma of Mental Illness; Boyd Ritsher *et al.*, 2003), quality of life (Manchester Short Assessment of Quality of Life; Priebe *et al.*, 1999) and social functioning (Personal and Social Performance Scale; Nasrallah *et al.*, 2008). Furthermore, the therapist offered a general impression of functioning (Clinical Global Impression – Schizophrenia; Haro *et al.*, 2003). No analysis of this data will be conducted, however, given the limited sample size.

## **ANALYSIS**

Statistical analyses were performed using SPSS version 22 and G\*Power 3.0. Following guidelines for a pilot study as specified by Arain, Campbell, Cooper, and Lancaster (2010), data gathering was performed mainly in order to test the study design and gain clinical impressions of the methodology and process of the trial. As such, only an effect size calculation (Cohen's *d*) was performed on the main outcome measure. Results on secondary outcome measures are made available on request.

## **RESULTS AND DISCUSSION**

This pilot study sought to examine the feasibility of a multicenter randomized controlled trial to investigate the effects of a newly

developed metacognitive psychotherapy: MERIT. Our first question was to determine whether new therapists could be trained in MERIT and what levels of post-training supervision are required. Both supervisors and therapists felt that the method had been transferred successfully. Use of the adherence measure (T-MAS) was helpful, both as a fidelity check and to guide therapists in identifying which elements of the therapy they had difficulty with and could subsequently discuss in supervision. Pertaining to the required levels of supervision, therapists found active participation in supervision essential to their successful application of MERIT. While weekly supervision would be an ideal, this may not be feasible in many public healthcare settings. A pragmatic consensus between supervisors and therapists was reached that biweekly supervision either face to face or virtually appears to be the minimum requirement.

Our second goal was to estimate the magnitude of clinical gains and determine the needed sample size for an RCT. The following (non-statistically significant) effect sizes were obtained: Self-Reflectivity: 0.65, Understanding the Other's Mind: 0, Decentration: 0.23, Mastery: 0.58 and Total: 0.85. The effect size for the total score (0.85) was entered in the program G\*Power, resulting in a required sample size of 50 when  $\alpha=0.05$  and 81 when  $\alpha=0.01$  (two-sided).

In spite of the reduced length of therapy (12 vs. 40 sessions), our data suggest a pattern of improvement which is consistent with previous case studies which documented similar improvement in metacognition (e.g. Lysaker *et al.*, 2005b, 2007a) as well as a pilot study with a comparable protocol (Bargenquast and Schweitzer, 2013). Participants' metacognitive capacity for Self-Reflectivity and Mastery specifically appeared to improve rather swiftly, while Understanding the Other's Mind and Decentration lagged behind; with the latter hypothesized to only improve following improvement in the other domains. Gains in

Self-Reflectivity indicated that, on average, participants developed the ability to distinguish between different cognitive operations and to start to name emotional experience in a nuanced manner. Gains in Mastery suggest participants moved from a state in which they had virtually no ability to think about how to respond to psychological challenges other than by gross avoidance to a position in which they could use metacognitive knowledge to either seek support or selectively avoid situations which were distressing.

| <b>TABLE 1: Relevant Outcomes</b> |                               |                              |          |          |          |
|-----------------------------------|-------------------------------|------------------------------|----------|----------|----------|
|                                   | <b>T0: Mean (SD)<br/>N=12</b> | <b>T1: Mean (SD)<br/>N=9</b> | <b>t</b> | <b>p</b> | <b>d</b> |
| <b>Primary outcomes</b>           |                               |                              |          |          |          |
| Metacognition: Self               | 3,375 (0.829)                 | 3,778 (0,441)                | -1,455   | 0,184    | -0.647   |
| Metacognition: Other              | 2,333 (1,030)                 | 2,333 (0,791)                | 0,000    | 1,000    | 0,000    |
| Metacognition:<br>Decentration    | 1,2083 (0,689)                | 1,0556 (0,682)               | ,603     | ,563     | 0,225    |
| Metacognition: Mastery            | 2,792 (1,196)                 | 3,444 (1,722)                | -1,313   | ,226     | -0,575   |
| Metacognition: Total              | 9,409 (2,528)                 | 10.611 (3,190)               | -1,104   | 0,302    | -0,853   |

It is a common finding that randomized controlled trials tend to yield a smaller effect size than pilot studies preceding them. As such, for the randomized controlled trial only an effect size of 0.5 was used (alpha=0.05, power= 0.80), instead of our obtained effect size of 0.85. Meta-analysis of 74 studies involving participants with psychotic disorders who had agreed to participate in psychosocial interventions found that with 25.58 weeks of intervention on average, 13% of participants drop out (Villeneuve *et al.*, 2010). Combining our more

conservative estimate of an effect size of 0.5, and setting the expected drop-out rate at 25%, a final sample size of 120 is set for the planned multicenter randomized controlled trial. Given the limited sample size, no further interpretation of these data was ventured.

We thirdly sought to determine at what rates patients would accept and participate in MERIT and whether the intended test battery and its administration was feasible. Here we found drop-out was 3/12 (25%); comparable to a pilot study into metacognitive training (8 sessions, drop-out 28%; Favrod *et al.*, 2011). Reasons for drop-out were relocating out of the treatment area, clinical deterioration, and a patient's decision that he did not need the treatment. For most patients it proved an initial challenge to understand the deviation from their experience in therapies which were often directive and did not actively position them to direct their own recovery. Patients reported having experienced the contact as demanding, but empowering. The fourth goal was to test the feasibility of the test battery. Computer administration of questionnaires proved efficient, particularly in ensuring there to be no missing data. On both the Faux Pas Test as well as the Dutch National Adult Reading Test (NLV) difficulties were encountered in ensuring sufficiently similar scoring between administrators. For the randomized controlled trial, additional documentation was developed and distributed to ensure (student) raters would produce reliable scores.

**IN SUMMARY** results gathered from this pilot study are positive: both the methodology of the therapy protocol and data gathering appear promising. This study, though pilot in nature, is among the first to suggest patients with schizophrenia will accept metacognitive therapy and evidence improvements in metacognitive capacity. As such, a randomized controlled trial is currently being performed (Van Donkersgoed *et al.*, 2014). Of note there were limitations. Most

notably the sample size is insufficient and no control group was used. The duration of the treatment was brief and results are needed from the ongoing trial to assess issues of dose and response. Finally we did not assess relevant formal objective and subjective outcomes outside of metacognition and thus future work is needed, such as the ongoing trial to better understand whether changes in metacognition translate readily into improved outcomes in general.

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### **CONFLICTS OF INTEREST**

None of the authors have any conflicts of interest.

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