

Metacognitive Training for Schizophrenia Patients (MCT): A Pilot Study on Feasibility, Treatment Adherence, and Subjective Efficacy

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Abstract

Objectives: A plethora of studies has confirmed that several cognitive biases (e.g., attributional style, jumping to conclusions, bias against disconfirmatory evidence, theory of mind, over-confidence in errors, need for closure, and low self-esteem) may play a pathogenetic role in the emergence and/or maintenance of the disorder, particularly delusions. The present study explored the safety, acceptance and subjective efficacy of a newly developed intervention program aimed at increasing awareness of, and possibly ameliorating, cognitive and behavioural biases in schizophrenia. Metacognitive training (MCT) builds upon inferences drawn from basic research on cognition and metacognition in schizophrenia. **Methods:** Forty outpatients were randomized to MCT and a control intervention (cognitive remediation, CogPack). Treatment in either group was performed twice weekly for an entire duration of 4 weeks (i.e., 8 sessions each lasting 45-60 minutes). At the end of the training, participants were asked to evaluate the subjective utility and efficacy of the program. In addition, treatment adherence and adverse events were documented. **Results:** MCT yielded superior scores relative to CogPack on several subjective parameters. Treatment adherence was comparable and no adverse events were noted during either intervention. **Conclusions:** The present study underscores the feasibility and acceptance of metacognitive training in psychosis. Future trials are warranted to verify the impact of MCT on the amelioration of metacognition assumed to exert a positive influence on symptomatology (German J Psychiatry 2007; 10: 69-78).

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Introduction

Cognitive Intervention in Schizophrenia

For psychiatric disorders formerly subsumed under the label “neuroses” (e.g., anxiety disorders) a joint psychological and biological therapeutic approach has

been consensually acknowledged as the treatment of choice over the last decades. Conversely, despite evidence for the efficacy of cognitive-behavioral intervention in psychosis, schizophrenia is in most facilities almost exclusively treated with neuroleptic agents. The neglect of psychotherapy in schizophrenia is partly historically motivated, in that influential figures such as Schneider and Jaspers (Jaspers, 1946; Walker, 1991) have overemphasized that schizophrenia, especially delusions, are not amenable to understanding. In addition, Freud has argued that treatment is destined to fail due to a fundamental lack of psychological accessibility. In

recent years, a renewed interest in the psychological and cognitive underpinnings of schizophrenia has led both to testable theories and treatment approaches, particularly cognitive-behavioural intervention, which have produced encouraging results (e.g., Alford & Beck, 1994; Gaudiano, 2006; Kuipers et al., 1998; Tarrier & Wykes, 2004).

Cognitive Biases in Schizophrenia

The rationale for cognitive intervention in psychosis partly builds upon a multitude of studies reporting cognitive biases in schizophrenia. These biases are thought to underpin the emergence and/or maintenance of the disorder, particularly delusions (for reviews see Bell, Halligan, & Ellis, 2006; Blackwood, Howard, Bentall, & Murray, 2001; Garety & Freeman, 1999). Cognitive biases relate to attributional style, theory of mind, decision-making style and metacognition. In contrast to neuropsychological functions such as memory and attention, cognitive biases relate more to distorted thinking styles when processing certain types of information rather than general performance impairments.

The most consistent evidence for cognitive distortions relevant to schizophrenia relates to abnormalities of data gathering (Freeman, 2007). In particular, patients with schizophrenia have been found to make strong judgments on the basis of little evidence, even in situations with no overt delusional content (e.g., Dudley & Over, 2003; Garety, Hemsley, & Wessely, 1991; Moritz & Woodward, 2005). This response pattern, termed jumping to conclusions (JTC) or liberal acceptance bias, has been most convincingly demonstrated with the probabilistic reasoning paradigm or beads task where the subject is asked to deduce the origin of a string of beads which are successively drawn from one out of two possible containers. Approximately 40-70% of schizophrenia patients make a decision after only one bead, while healthy participants arrive at a conclusion when more evidence is gathered.

Further, dysfunctions in metamemory are well-replicated in the disorder. Danion and coworkers have repeatedly found that schizophrenia patients have less vivid recollection compared to controls (e.g., Danion, Kazes, Huron, & Karchouni, 2003; Danion, Rizzo, & Bruant, 1999). This apparent reduction in sharpness of memory, and unreliability of memory functioning in schizophrenia, results in frequent memory errors. Interestingly, general memory problems and lack of vividness are somewhat counter-intuitively not accompanied with decreased memory confidence. Instead, overconfidence in errors is typically found in patients, accompanied by under-confidence for correct recollections (e.g., Moritz & Woodward, 2006a; Moritz, Woodward, & Rodriguez-Raecke, 2006). This, along with an enhanced rate of memory errors, contributes to a mental condition termed knowledge corruption (Moritz & Woodward, 2006a): a large proportion of information a person with schizophrenia holds as true and trustworthy is in fact incorrect.

In addition, work conducted by Bentall and Kinderman (Bentall, Baker, & Havers, 1991; Kinderman & Bentall, 1997; Lyon, Kaney, & Bentall, 1994) has demonstrated that patients with schizophrenia tend to blame other persons rather

than circumstances, while at the same time they tend to take credit for themselves when personal outcome is favourable. Although this exaggerated self-serving bias has not been replicated in more recent research (McKay, Langdon, & Coltheart, 2005; Moritz, Woodward, Burlon, Braus, & Andresen, 2007), there is general agreement that deviances of attributional style are characteristic of paranoid schizophrenia.

Beginning with Alfred Adler (1914/1929), a growing number of researchers and clinicians, in recent years particularly Bentall and Kinderman, have emphasized the putative role of delusions to enhance self-esteem and to protect the ego (for a review see Bentall, Corcoran, Howard, Blackwood, & Kinderman, 2001). In this view, many instances of delusions, grandiose as well as persecutory, pursue the implicit goal of enhancing self-esteem, and to provide the subject with importance and a purpose in life, respectively (Garety, 1992). In accordance with this, it was recently found that patients with acute delusions showed higher explicit self-esteem than remitted patients, while implicit or true self-esteem, as assessed with the Implicit Association Test, was lowest in acute patients (Moritz, Werner, & Von Collani, 2006).

In the early 1990s, deficits in theory of mind, that is the inability to empathize, have been linked with schizophrenia, particularly certain delusional subtypes (e.g., Frith & Corcoran, 1996). Researchers reported problems in schizophrenia patients, particularly those with delusions and formal thought disorder, to empathize and deduce problems that require situational understanding and social intelligence. Difficulties interpreting facial expressions are also well documented in schizophrenia, which may produce and aggravate problems in social inference (Phillips & David, 1995). Recent reviews, however, conclude that evidence for a specific linkage between theory of mind deficits and delusion formation is at best equivocal (Freeman, 2007).

Another bias concerns the inability of patients to fully consider and acknowledge counter-arguments for their inferences and to withdraw from strongly held positions. This response pattern has been termed bias against disconfirmatory evidence (BADE, Moritz & Woodward, 2006b; Woodward, Moritz, Cuttler, & Whitman, 2006, in press). When presenting subjects with successive information that increasingly disambiguated a complex scenario, patients with schizophrenia, particularly with delusions, were more often "led up the garden path", that is, they stuck to interpretations that were initially plausible but increasingly discouraged by context. Importantly, like the afore-mentioned biases, reluctance to change beliefs is not confined to delusional material but is observed in neutral scenarios as well.

Evidence is accumulating that patients are not cognizant to these biases. Freeman and colleagues (2006) have reported that despite a marked JTC bias in experimental studies, patients view themselves as rather hesitant decision-makers who are open to other views and sufficiently weigh the pros and cons of different positions (for compatible findings see McKay, Langdon, & Coltheart, 2006). Recent research conducted with the Beck Cognitive Insight Scale, which taps into the awareness of cognitive biases, supports this inference (Mass, 2006; Warman & Martin, 2006). The amelioration of this fundamental dissociation of objective and subjective

tive performance by making patients aware of these cognitive biases and providing direct experience of their caveats, lies at the core of a newly developed treatment approach termed metacognitive training for schizophrenia patients (MCT).

Metacognitive Training in Schizophrenia

To date, psychological treatment in schizophrenia is under-represented and the availability of cognitive training programs is scarce despite convincing evidence for the efficacy of, for example, cognitive behavioural intervention (CBT) on treatment-refractory psychosis (Birchwood & Trower, 2006; Zimmermann, Favrod, Trieu, & Pomini, 2005). In light of the solidity of the aforementioned findings obtained from basic cognitive research, and the apparent neglect in converting this knowledge into treatment programs, in 2002 we began to compile material for a training program aimed to raise patients' awareness for these disturbances, that is, to enhance metacognitive competence (*meta* = beyond/above, cognition = thinking: "thinking about one's thinking"). Unlike established CBT programs this program is not dedicated to individual delusional themes but focuses on general metacognitive biases by means of exercises (please also see discussion for suggestions to complement both approaches). Bringing such deviances to the attention of patients and demonstrating their disadvantages may alter the current repertoire of problem-solving, which in turn may prevent relapse. MCT can also be considered knowledge translation, whereby the most up-to-date findings on cognition and schizophrenia are presented to patients in an accessible format. The expectation is that patients may engage in further reasoning and challenge preliminary conclusions that before would have been unequivocally accepted, and may have fostered delusional interpretation.

Metacognitive Training for Schizophrenia Patients (MCT)

In 2005, we issued eight modules along with a manual introducing a novel metacognitive training program for schizophrenia patients, which will be summarized in the following. Manual, modules, homework, and other resources can be downloaded free of charge via the internet: http://www.uke.uni-hamburg.de/kliniken/psychiatrie/index_17380.php.

To date, the training is available in German and English. French and Dutch versions are currently devised and will be published under the same web-link.

MCT is a group intervention intended for 3-10 patients. Sessions are typically conducted either by a clinical psychologist, psychiatrist, occupational therapist or psychiatric nurse. Each of the eight sessions lasts 45-60 minutes and deals with a specific cognitive aberration. In each module, patients are first familiarized with the target domain (e.g., attributional style, jumping to conclusions, theory of mind)

by means of a number of everyday examples and illustrations. For example, in module 7 patients are first encouraged to discuss the advantages and disadvantages of jumping to conclusions, the latter being demonstrated by a number of historical as well as every-day examples, where jumping to conclusions had led to momentous false decisions (see also Methods). Before the start of the task series, a slide entitled "Why are we doing this?" is presented summarizing current scientific findings on the relationship between the target domain and psychosis. It is stressed, however, that those findings may not apply to all of the attendees in order to avoid over-generalizations. To emphasize the relevance of the modules for psychosis and to ensure a lasting impact on patients, the linkage of these biases with psychosis formation/maintenance is repeated at the end of each session (slide: "Transfer to psychosis") and eventually illustrated with anecdotal accounts of psychosis. At the core of the modules are exercises (module 7: deducing correct titles of paintings) which in many instances can only be solved when subjects counter a JTC bias. Leaflets with homework and discussions about symptoms of the participants should assist this process. The material suffices for at least two cycles per patient. Each cycle involves the same target domains but with different exercises.

The MCT is an open group. Hence, new members can join at any time-point in the cycle, whereby it is instrumental that beginners are familiarized with the term metacognition and the rationale of the training at the beginning of their first session (i.e., alteration of cognitive biases thought to subserve delusion formation). The appendix summarizes the content of each module. For further details, the reader is referred to the manual (see web-link above).

Aim of the Present Study

The present study explored the feasibility, safety and patient-rated efficacy of the metacognitive training. Outpatients were randomly allocated either to metacognitive training or an established cognitive training program (CogPack®, see methods section). After four weeks, which comprised up to eight sessions of either MCT (full cycle) or CogPack, participants were asked to anonymously complete a questionnaire on perceived intervention benefit. It was expected that patients would show greater enthusiasm for the MCT than the control intervention and would attend the experimental condition more regularly. We carefully explored some potential challenges to the training. First, patients may feel insulted by, and may even aggressively refute the explicit assumption that they share cognitive disturbances and biases. This may result in higher drop-out rates in the experimental group. Secondly, lower intellectual performance may render patients incapable of interacting and concentrating on the tasks at hand.

It is important to note that in the current study we are not attempting to assess the impact of MCT on the symptoms of psychosis; this is currently being addressed in a larger comprehensive randomized-trial study. However, the MCT is unique in that the materials originate primarily from cognitive research, thus it acts as a method of knowledge transla-

tion. In other words, the MCT is a psychoeducational method of informing patients about the state-of-the-art of research on cognition and schizophrenia. The “outcome” measures we use in this study can inform us how the patients view MCT in a general way, as only a favorable assessment by patients would allow the MCT to function as a knowledge translation tool.

Methods

Participants

Forty patients who were consecutively admitted to the outpatient unit for psychosis and personality disorders of the University Hospital of Hamburg were randomly assigned to two treatment arms: metacognitive and CogPack training. Patients met criteria for a schizophrenia spectrum disorder including schizoaffective illness and delusional disorder. In order to collect data on a representative clinical sample, no further constraints regarding inclusion were imposed. The sociodemographic characteristics of the sample are displayed in Table 1. Most patients showed attenuated psychotic symptoms. Patients were included in the study if they currently or in the past had displayed psychotic symptoms. Patients with other diagnoses who had taken part in either intervention due to expressed wish (e.g., via word-of-mouth), or because the ward team deemed the training beneficial, were not included in the analysis.

Randomization

New participants were randomly allocated to either treatment arm. After each session, treatment adherence and reasons for absence were documented. Both training programs were administered twice weekly as a group intervention, whereby each MCT session comprised between 3-10 patients, while each Cogpack session did not include more than 3-4 patients due to a limited number of computer workstations. Thus, two parallel groups were run occasionally for the CogPack intervention. A cycle of eight sessions was completed after four weeks. After the final individual session, patients were handed a questionnaire comprising 10 questions on acceptance and subjective efficacy (see below). Participants were reminded to provide an open and critical feedback. Anonymity was assured.

None of the subjects took part in the treatment programs in parallel. However, some patients first participated in the CogPack training and after four weeks of training switched to metacognitive training and vice versa. In this case, only results from the first training session was included in the analysis.

Cognitive Intervention

CogPack served as control intervention. It is a computerized cognitive remediation program for schizophrenia patients (Marker, 2003), which has been translated into several languages including English. Treatment administration is individual. Thus, although several patients share a room, each participant works through different exercises on personal computer stations. For the present study, the Olbrich series was administered, which covers a wide range of tasks involving memory, logical thinking, selective attention and psychomotor speed. The difficulty level for each patient is adapted automatically depending on to the subject's performance on prior exercises. Further, the patient receives individual feedback on his or her performance. To match with MCT, eight sessions were administered, which in the majority of cases did not fully complete the Olbrich series. In the unlikely event that a patient completed the series before the eighth session, the cycle was repeated. The experimental condition is described in section Metacognitive Training for Schizophrenia Patients (MCT).

Instruments

Before participation, patients were formally diagnosed using the MINI interview (Sheehan et al., 1998). Patients who did not meet criteria for schizophrenia were excluded from the present study and only participated in the training if recommended by the outpatient treatment team or because of personal choice (see above). Safety was assessed by means of clinical observation during training and chart review (e.g., documented incidents of symptom worsening related to training). Acceptance and feasibility was determined by a number of variables: frequency of unattended sessions per patients and feedback on a questionnaire that had to be completed anonymously at the end of each cycle. Patients were asked 10 questions on a five-point likert scale (1 = fully disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = fully agree):

1. The training was useful and sensible.
2. I had to force myself to go to the training regularly.
3. In every-day life, I do *not* apply the lessons learned.
4. The training was an important part of my treatment program.
5. I would have liked to spend the time doing something else.
6. The training was fun.
7. A lot of what I learned during training is useful to my daily routine.
8. The goals and rationale of the training were clear to me.
9. I would recommend the training to others.
10. I found it beneficial that the training was administered in a group.

Results

Groups did not differ on any sociodemographic background or psychopathological parameter at admission. The number of unattended sessions was low and comparable for MCT ($M = 0.87$, $SD = 1.62$) and CogPack ($M = 1.18$, $SD = 1.53$; difference: $p > .6$).

For comparing the groups on subjective efficacy, between-group t-tests were computed. Numerically, MCT achieved higher scores on all 10 subjective parameters, and 4 of these reached statistical significance: patients attending MCT reported having more fun during sessions, reported that they could apply lessons in every-day life, would recommend the training to others and were less likely bored (Figure 1). During the intervention period, no adverse events were noted (e.g., no relapse).

Table 1. Sample Characteristics on Sociodemographic Background Variables and Psychopathology at Admission. PANSS = Positive and Negative Syndrome Scale

Variable	MCT group ($n = 20$)	CogPack ($n = 20$)	Statistics
Age (mean, SD)	34.39 (11.79)	35.50 (12.34)	$t = 0.15$, $p > .8$
Years of school (mean, SD)	11.89 (1.60)	11.61 (2.20)	$t = 0.17$, $p > .8$
Sex (male/female)	14/6	13/7	$\chi^2(1) = 0.11$, $p > .7$
PANSS positive (mean, SD)	13.78 (3.99)	15.59 (7.18)	$t = 0.93$, $p > .3$
PANSS negative (mean, SD)	19.06 (8.74)	18.18 (5.95)	$t = 0.35$, $p > .7$
PANSS global (mean, SD)	35.61 (12.48)	35.88 (12.03)	$t = 0.06$, $p > .9$
PANSS total (mean, SD)	68.44 (22.25)	69.65 (22.70)	$t = 0.16$, $p > .8$

Discussion

The present study asserts the feasibility and safety of the *metacognitive training program for schizophrenia patients* (MCT). All patients were retained in the groups and no adverse events were noted such as relapse, which also mirrors our present experience with both inpatients and outpatients samples. On four out of 10 parameters MCT was rated significantly higher than the control intervention. Clearly, patients' acceptance can by no means be taken as a proxy for the results of a randomized controlled trial with external and assessor-blind assessment of psychopathology and metacognitive variables. Nevertheless, it is an encouraging first indication to further pursue a metacognitive approach. Since participants of the MCT are both explicitly ("Why are we doing this", "Transfer to psychosis") and implicitly (exercises that often prompt errors) confronted with their dysfunctional cognitive styles we entertained the possibility that drop-out rates would be high because of sealing over effects reflecting

a special form of illness denial (i.e., "I once needed help but not anymore"). This concern proved unfounded.

Unlike other programs in the field, MCT is provided cost-free in different languages and can be easily accessed and downloaded via the internet. Further, the modules are highly standardized and require minimal staff training, preparation before sessions and equipment. Most slides are self-explanatory and the manual provides extensive suggestions for administrations (1-3 pages per module). The program avoids confrontation without sacrificing its major aim to make patients aware of their metacognitive biases by means of (a) scientific evidence (slide: "Why are we doing this?") and (b) correcting experience via the exercises. The goal is to challenge the metacognitive infrastructure of delusion formation and maintenance. Patients who are aware of their biases and limited cognitive competence may re-think consequential decisions in the future, become more deliberate and hesitant in their actions and open to others' advice. This in turn could have a beneficial effect on symptomatology if the assumption holds true that deficits in metacognition and certain cognitive biases prompt psychotic breakdown.

The study suffers from several shortcomings, some of which have been already addressed. First, no firm psychopathological assessment was undertaken for the present study. However, a recent diploma thesis (Aghotor, 2007) found that MCT achieved superior results for psychopathological rating relative to an active control intervention (cognitive remediation): PANSS positive symptoms declined to a larger extent than for the control group ($d = .43$).

A second limitation is that the present group consisted mainly of outpatients and may thus not be transferred to acute populations. Although we have gathered good experience in the meantime with inpatients, the representativeness of the present findings requires direct and independent empirical confirmation.

As described in the introduction, like MCT, cognitive-behavioral therapy for schizophrenia (CBT, Alford & Beck, 1994; Gaudiano, 2006; Kuipers et al., 1998; Tarrier & Wykes, 2004) typically addresses cognitive biases and partially draws upon a similar literature. In our view, CBT and MCT differ in their method of conveying these (front door vs. back door approach) rather than their basic rationale. CBT openly targets individual delusions, which may be the cause of high drop-out rates at least in some CBT trials, because patients may seal over or may not want to be challenged directly. In contrast, MCT focuses on *general* metacognitive biases seen in many psychotic patients with the prospect that any positive change in these domains may positively impact on individual delusions. Individual delusional ideas are not openly challenged in the group unless a patient presents such ideas him or herself. Importantly, CBT and MCT are not considered rivaling or redundant procedures but ideally complement each other. Individual CBT may follow a (group) MCT session to allow successful transition of the overall learning objectives to the individual problems. MCT may provide a common "safe" ground for patients and therapists to discuss the thinking biases that underlie the patients' own delusions.

In view of the large proportion of patients with schizophrenia who discontinue psychopharmacological intervention

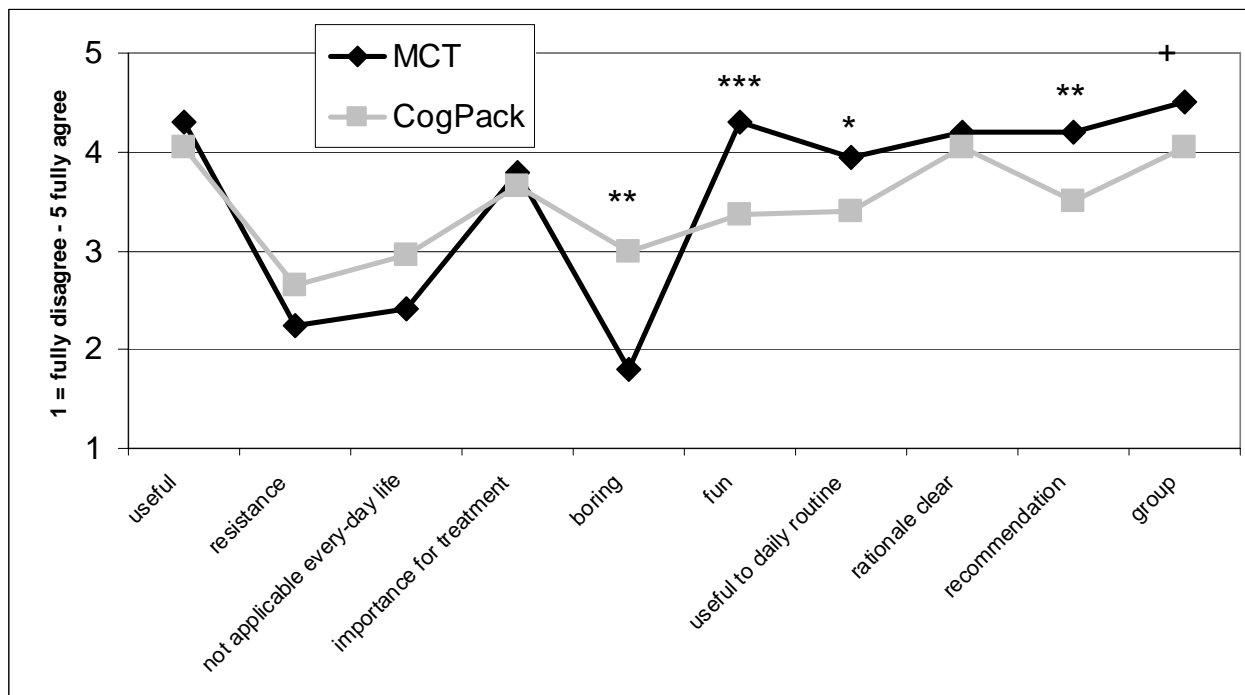


Figure 1. Results from the subjective assessment. For boredom (item 5), fun (item 6), usefulness (item 8) and recommendation (item 9), MCT achieved significantly better scores.

(Lieberman et al., 2005) or show only partial or no symptom improvement after discharge, it is necessary to seek for additional treatment strategies. There is evidence that CBT shows 20-40% symptom improvement (Landa, Silverstein, Schwartz, & Savitz, 2006) and is particularly beneficial for treatment-refractory patients. Whether this promise also holds for MCT awaits to be empirically established but preliminary results are encouraging (Aghotor, 2007). Notwithstanding continued problems with, and reservations about, psychological intervention in psychosis, the echo of the Freudian and Jaspersian manifesto that schizophrenia patients are not amenable to psychotherapy, or that core delusions are not understandable, has now faded over the years, and clinicians are re-thinking schizophrenia as a complex disorder requiring a multi-faceted treatment approach includes direct psychotherapy and cognitive training in addition to psychopharmacological treatment.

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Appendix: Summary of Metacognitive Training (MCT) Modules

Module	Target domain	Description of rationale and core exercises
1. Attribution: Blaming and Taking Credit	Self-serving Bias	In the introduction, the consequences of different attributional styles are discussed (e.g., blaming others for failures may not challenge self-esteem but easily leads to interpersonal conflict). For the exercises, patients are asked to brainstorm about different causes for positive and negative events (e.g., "A friend was talking behind your back"; dominant interpretation: "Friend is not trustworthy" (blaming other); alternatives: "I have done something bad" (blaming self), "She is preparing for a surprise party for my birthday" (attribution to circumstances)).
2. Jumping to Conclusions I	Jumping to conclusions; bias against disconfirmatory evidence	The consequences of hasty vs. deliberate decision-making are discussed. First task series: Participants are confronted with fragmented pictures that eventually display simple objects. Early decisions for interpretations often lead to errors, highlighting the importance of gathering sufficient information before arriving at strong decisions. Second task series: ambiguous pictures are displayed demonstrating that first impressions may not necessarily lead to false decisions, but may often only reveal half the truth.
3. Change Beliefs (Incorrigibility)	Bias against disconfirmatory evidence	Cartoon sequences are shown that increasingly disambiguate a complex scenario. After each (new) picture, patients are asked to (re-) rate the plausibility of four interpretations. While on some pictures, the initially most likely interpretation prevails, on others, patients are "led up the garden path": initially strong interpretations are discouraged over time. Thus, patients learn to withhold strong judgments until sufficient evidence has been collected and should maintain an open and flexible attitude against counter-arguments and alternative views. The reasons and disadvantages of incorrigibility are thoroughly discussed in the introduction.
4. To emphasize	Theory of mind 1st order	First task series: Patients are presented pictures of human faces. Participants discuss what the depicted character(s) may feel. Following this, the correct solution is highlighted (often accompanied by the full picture) which frequently violates a first intuition. Second task series: Cartoon strips are shown that either have to be completed, or brought into the correct order. Participants are shown that social inferences should involve considering multiple cues. The more information we gather, the more valid our evaluation about a person and his/her motives.
5. Memory	Over-confidence in errors	Complex scenes (e.g., beach) are displayed, which are missing two otherwise central elements (e.g., towel, ball). Because of logical inference, gist-based recollection and lax acceptance heuristics, respectively, such so-called lure items are falsely recognized in a later recognition trial. Patients are first familiarized with the false memory effect and then learn how to differentiate between false and correct memories by means of the vividness heuristic. The constructive rather than passive nature of memory is brought to the participants' attention. In the introduction, factors that foster (e.g., mnemonic aids) or impair memory acquisition (e.g., alcohol) are discussed as well as examples for collective false memories (e.g. the famous line "Play it again, Sam" from Casablanca, which was in fact never uttered).
6. To emphasize	Theory of mind 2 nd order; need for closure	Cartoon sequences are presented, for which participants are required to take the perspective of one of the protagonists, and generate hypotheses concerning what he or she might think about another person. For the majority of sequences, no definitive solutions can be inferred, which is unsatisfactory for patients with an enhanced need for closure. Participants should come up with ideas what additional information would reduce ambiguity in each scenario. If no definitive decision can be made, it should be discussed which interpretations are best supported by the available evidence. For the introduction, different aspects guiding theory of mind (e.g. language, prior knowledge of person, written statements) are discussed with respect to both their utility and fallibility to arrive at correct social inferences.
7. Jumping to Conclusions II	Jumping to conclusions	In the introduction, the advantages (e.g., saves time) and disadvantages (e.g., likely to generate errors) of quick decision-making are outlined. Classical and modern paintings are displayed. The correct title has to be deduced from four response alternatives. On superficial inspection, many pictures tempt participants to make false assumptions. The experimenter directs the groups' attention to features that have yet gone unnoticed.
8. Mood and self-esteem	Mood and self-esteem	In the introduction, group and experimenter enumerate typical depressive symptoms, treatment options (e.g., psychotherapy, drugs) and origins for low self-

esteem (“nature and nurture”). Then, typical depressive cognitive patterns are illustrated (e.g., over-generalization, selective abstraction). Strategies are conveyed for replacing these cognitions with more constructive ones. Finally, some simple exercises are taught that may help patients to alter negative self-schemata and raise their mood.
