Psychosocial Approaches in the Treatment of Psychosis: Cognitive Behavior Therapy for Psychosis (CBTp) and Metacognitive Training (MCT)

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Abstract

Although antipsychotic medication has been the most widely used and efficacious treatment in ameliorating the symptoms of psychosis, there has been a growing realization that pharmacological treatment has limitations. A significant minority of individuals continue to show "treatment-resistant" symptoms and significant relapse risk, while others show symptom reduction without the corresponding improvement in social and role functioning. Psychotherapy, in combination with medication, can help with symptom reduction, as well as improve functioning and quality of life. In this paper, we focus on two modalities of psychotherapy which have been shown to improve symptomatology and functioning in individuals with psychosis: Cognitive Behavior Therapy for psychosis (CBTp) and Metacognitive Training (MCT). Both treatment approaches focus on increasing the individuals' understanding of the psychological mechanisms associated with delusions and hallucinations, and helping them develop strategies to improve reality testing and belief evaluation. We aim to provide an overview of both treatments, examining not only the theoretical mechanisms and efficacy of each approach, but also the common therapeutic components they share.

Key Words: Cognitive Behavioral Therapy, Delusions, Metacognitive Training, Psychosis, Psychotherapy

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Introduction

Schizophrenia is a chronic, debilitating mental illness characterized by symptoms including delusions and hallucinations (the "positive" symptoms), flat affect and apathy (the "negative" symptoms) and disorganized thinking and behavior. Antipsychotic medication has been the mainstay of treatment in schizophrenia and has been found to be effective in symptom amelioration, particularly of the positive symptoms. However, not all patients achieve significant symptom remission. A recent meta-analysis (1) indicated a therapeutic response in ~40% of participants in response to an antipsychotic (compared to 24% on placebo). A majority of individuals continue to experience residual positive and negative symptoms. Thus, there is a significant need for non-pharmacological techniques that can work alongside medication to help with symptom reduction and improved role functioning and quality of life.

A psychological understanding of the factors associated with delusion formation and maintenance was hindered by the belief within the psychiatric community that delusions were inherently "un-understandable." This idea, along with the Freudian notion that psychotherapy with psychotic patients was impossible due to difficulties with having a stable transference reaction, also impeded the development of psychotherapy for psychosis. However, from the 1980s onwards, a growing body of research in cognitive psychology and cognitive neuropsychiatry has found that delusions are, in fact, associated with a number of cognitive biases (see [2] for an excellent overview), and are amenable to psychotherapy.

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Psychosocial interventions can improve quality of life through a number of mechanisms. They can play a role in symptom reduction, as well as indirect mechanisms such as reducing distress associated with persisting symptoms, increasing understanding of medications and illness, improving compliance, improving coping mechanisms, and helping with relapse prevention.

In this review, we briefly describe two of the most well-researched psychosocial interventions for psychosis—cognitive behavior therapy for psychosis (CBTp) and metacognitive therapy (MCT)—and focus on the common elements and potential therapeutic mechanisms of both interventions. In addition to these, the NICE guidelines (3) suggest a number of other psychosocial interventions for psychosis including Cognitive Remediation (see [4] and [5] for reviews and meta-analyses), as well as Family Intervention and Family Therapy (see [6] for a meta-analysis and [7] for a Cochrane review). There is also some evidence for Social Skills Training (see [8] for a review), and integrative approaches such as Cognitive Behavior Social Skills Training (CBSST) developed by Granholm and colleagues (9, 10).

Cognitive Behavior Therapy for Psychosis

Cognitive behavior therapy (CBT) is based on the premise that it is our *interpretation* of a situation, rather than the situation itself, which leads to our emotional response. For instance, if I leave a message for a friend, and don't hear back from her, I may notice that I am sad. However, it is not actually the fact that she hasn't called back that makes me sad, but rather my interpretation of the situation (e.g., that her silence means that we are no longer friends) which causes the emotional reaction. A different interpretation (e.g., she doesn't care) may lead to a different emotional reaction (like anger or irritation), while, in actuality, she might have simply been tied up or not received the message. Thus, CBT aims at helping individuals recognize what are the types of thoughts, evaluations or interpretations that occur in their lives, recognize whether there are biases in these ways of thinking, look for confirmatory and disconfirmatory evidence, and develop alternative ways of thinking, which might be more realistic. A commonly used CBT tool is the "Thought Record," where clients note these "negative automatic thoughts" (NATs), along with associated emotions, identifying cognitive biases, evidence, and a more "balanced" alternative thought. Over time, this approach becomes more automatic, and leads to reductions in the NATs and resultant negative emotions.

Furthermore, our evaluation of the situation may lead to certain behaviors, which might also be maladaptive and play a role in maintaining the biased mood state. In the above example, for instance, rather than call my friend back later to check on things, I might withdraw, or stop answering her calls, which prevents me from disconfirming my original assumptions, and leads me to maintaining my negative emotional state (sadness, anger, etc.). Another goal of CBT is, therefore, to identify these maladaptive behavioral patterns and have the client find ways to try out new behaviors.

Based on the cognitive model of psychotic symptoms, CBT for psychosis has emerged as an efficacious adjunct to pharmacotherapy in the management of symptoms associated with schizophrenia spectrum disorders (11, 12). The primary goal of CBT for psychosis (CBTp) is to assist individuals in identifying, monitoring and evaluating their assumptions, beliefs and thoughts regarding psychotic experiences, and assist individuals in examining the relationship between these thoughts, emotions and behaviors. For instance, if an individual is experiencing auditory hallucinations, it may not be the presence of the hallucination that is inherently distressing, but the assumptions and beliefs associated with the voices which cause the distress (e.g., "what the voices say are true," or "the voices are all knowing/all powerful"). Therefore, CBTp may aim to examine whether those beliefs are indeed true, or whether there are any other ways to come to terms with the experience of hearing the voices, as well as change behaviors that clients may be engaging in which reinforce those beliefs (e.g., isolating themselves at home, or acting on the voices), thus allowing them to minimize the impact the hallucinations have on their everyday life and functioning. In this way CBTp aims to decrease distressing emotional experiences or reduce maladaptive behavior (13).

In therapy, clients are encouraged to identify and challenge beliefs or ways of thinking that may be maintaining

symptoms (e.g., delusions). Depending on the specific CBTp program, the emphasis may be on finding creative methods to gently challenge delusional beliefs (e.g., that people in black suits are spies who are following the patient) using techniques such as "peripheral questioning," identifying maladaptive thinking patterns (e.g., a tendency to catastrophize) or focus on developing adaptive coping strategies (e.g., seeking help rather than isolating). In addition to treating these positive symptoms of psychosis, CBTp may also be used to target the negative symptoms of the disorder (e.g., apathy, flat affect), as well as depression, distress or anxiety.

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The evidence-base for CBTp is rapidly expanding (e.g., 9, 14, 15-20). One of the first-meta-analyses (11) found a positive effect of CBT for psychosis in reducing positive symptoms when compared to other adjunctive treatments, with a moderate overall mean-weighted effect size (ES) of 0.37 (95% CI: 0.23–0.52). A subsequent CBTp meta-analysis found a similar mean-weighted ES of 0.40 (95% CI: 0.25–0.55) (21). Although a more recent review of CBT for psychosis by Jones et al. suggested that these benefits may dissipate when compared to other psychological treatment control groups (13), the number of studies included in this review for each treatment outcome was relatively small and treatment modality varied from study to study. Further, even Jones et al. noted that CBTp is effective in reducing distress and depression. It should also be noted that client satisfaction with CBTp is generally high, particularly for individuals who feel they have gained CBT skills and knowledge (22). Thus, although evidence may be inconsistent as to whether CBT for psychosis offers a unique advantage over other forms of psychological treatment, there is evidence supporting both its efficacy and feasibility in treating individuals with schizophrenia (23). In addition to its role in ameliorating the positive symptoms of psychosis, it has been shown to play a role in relapse prevention (24), insight (25), distress associated with symptoms (26), and social functioning (27).

The U.K.'s NICE guidelines (3) evaluated over 45 randomized clinical trials (RCTs) in their recommendations that CBT is an effective treatment for psychosis and should be offered to all patients with schizophrenia. Detailed reviews for CBTp can be found in a number of excellent review articles and meta-analyses (16, 21, 28-31), books and training manuals (including those by Kingdon and Turkington [32], Beck et al. [33], and others).

Metacognitive Training

Metacognitive training (MCT) was developed as a knowledge translation tool by our group (34, 35), and is based on twenty years of cognitive neuroscience research on the cognitive biases associated with psychosis, particularly delusions and hallucinations. It is a CBT-based approach, but employs a "back door" method. Rather than directly discussing the individual's beliefs and experiences, MCT presents a series of semi-didactic modules where participants learn about various cognitive biases and cognitive processes associated with belief formation, delusions and hallucinations. Through a series of interactive exercises, they are then invited to consider whether some of these processes might play a role in their own symptomatology, and are given homework exercises to attempt to examine, challenge and correct them. Thus, the bulk of the in-session work is merely on "sowing the seeds of doubt" and getting participants to recognize the universal tendencies and biases in thinking that might (in psychosis) lead to unusual beliefs. The full MCT group program consists of eight modules, which are repeated twice (for a total of sixteen sessions), with slightly different examples and exercises since we find that repetition allows for better consolidation of the material, and better applicability to daily life. The program can be downloaded for free (www.uke.de/mct) in over thirty languages.

Metacognitive therapy (MCT+) is an individualized application of the same information, allowing the therapist to tailor the information to the patient. The MCT+ modules cover the same topics as the MCT modules, but allow for more discussion of the role of potential cognitive biases in the everyday lives of the clients.

The eight modules cover the following topics:

1. *Jumping to conclusions/premature decision making:* one of the most studied cognitive biases in schizophrenia is the "data gathering bias" (36). This bias posits that patients with schizophrenia (and particularly those with delusions) use less information to arrive at decisions, and may hold those decisions with a higher degree of confidence; a response pattern sometimes referred to as the "jumping to conclusions" (JTC) response. Two MCT modules focus on the JTC bias and, through a series of interactive exercises, explore the negative effects of premature decision making (e.g., formation and/or maintenance of usual beliefs) and provide strategies to help circumvent the bias (e.g., delaying definite decisions until sufficient evidence is collected).

2. *The bias against disconfirmatory evidence:* another cognitive bias that has been linked to delusional severity in schizophrenia is the "bias against disconfirmatory evidence"

(BADE), whereby evidence that disconfirms a given belief or hypothesis (even those that are delusion-neutral) is not adequately used or well integrated when revising these beliefs/hypotheses (37-39). This bias is consistent with the clinical observation that delusions are typically fixed false beliefs that are maintained despite counter-evidence and rational counter-argument. Since one of the central aims of both MCT and CBTp is to increase cognitive flexibility in clients over the course of treatment, MCT dedicates two training modules specifically on improving belief inflexibility in psychosis, with the aim of reducing the BADE effect in this population. This module highlights the disadvantages of belief inflexibility, giving case examples on how an unwillingness to revise positions promotes problems to the point of disastrous events. The module also demonstrates the bias at work via a number of interactive exercises where participants learn the advantages of integrating disconfirmatory evidence when revising beliefs.

3. *Memory and metamemory:* another MCT module focuses on the "overconfidence in errors" effect, whereby people with schizophrenia are relatively *overconfident* in memory errors while at the same time being *underconfident* in correct responses (40). MCT targets this bias by teaching participants to avoid absolute surety in their memories if a vivid recollection is not available, thereby allowing them to consider alternative possibilities and recognize potential inaccuracies in situations that could otherwise lead to errors. Participants learn in these situations that further proof should be collected before making confident decisions, particularly in important social contexts (e.g., interpersonal conflicts).

4. *Attributional biases:* a biased attributional style, whereby unjustified blame for negative events can be cast on other people (e.g., neighbors) and/or institutions (e.g., government), has been found to be associated with paranoia. This module aims to teach participants to consider alternative attributions within social contexts (e.g., if the client is worried that a friend is talking behind his back—rather than focus on a negative personalized attribution like "the person is planning a conspiracy against me"—he could look at alternative interpretations such as "this is normal, we all gossip from time to time"), with fewer monocausal and personalized attributions.

5. *Theory of Mind* (ToM): ToM deficits have been found to be associated with a range of symptoms in schizophrenia, and can lead to the misunderstanding of what is on the minds of others (41). This module, along with the attribution biases module, aims to highlight the potential fallibility of different cues for social cognition (e.g., appearance, language), which might lead to an incorrect interpretation of the intentions and emotions of other people. Clients also carry out exercises in emotion recognition, and identifying social cues, while recognizing that these cues could be inaccurate under some conditions.

6. *Depression and self-esteem*: depressive symptomatology and negative core beliefs have been found to be associated with symptoms of schizophrenia (e.g., bad-me paranoia), as well as playing a key role in reduced quality of life. This module provides clients with psychoeducation about depression, as well as providing more functional coping strategies, that could help to alter low self-esteem and raise depressed mood. In addition, the most recent iteration of MCT has added two additional modules that focus on self-esteem and stigma, which expand on the themes highlighted in the depression module.

In addition to its role in ameliorating the positive symptoms of psychosis, CBTp has been shown to play a role in relapse prevention, insight, distress associated with symptoms, and social functioning …

Like CBTp, the evidence-base for MCT is steadily growing. One of the first studies comparing the effectiveness of MCT to treatment-as-usual (TAU) reported significantly reduced delusion distress ($t_{(34)}$=2.02, p=.05) and improved social functioning ($t_{(32)}$=2.23, p<.05), with both findings having large effect sizes (Hedges' g=0.68 and 0.77, respectively) (42). A more recent small-scale study by Balzan et al., combining aspects of the JTC and BADE modules into a single individually administered module, found that MCT participants (relative to TAU controls) exhibited significant decreases in delusional severity and conviction on a variety of measures (e.g., SAPS: F[1, 26]=17.19, p<0.001, η_p^2=.40), significant improvements in clinical insight (F[1, 26]=7.70, p<0.05, η_p^2=.23), as well as performance on the cognitive bias tasks (F[1, 26]=13.66, p<0.01, η_p^2=.34). Moreover, performance improvements on the cognitive bias tasks significantly correlated with the observed reductions in overall positive symptomology, and participants evaluated the training positively (43). The largest RCT to date (by Moritz and colleagues) involved a clinical sample of 150 people with schizophrenia spectrum disorders and where MCT was compared to cognitive remediation (44). Relative to those receiving cognitive remediation, MCT participants significantly reduced delusions on multiple scales at both posttreatment time points (four weeks and six months), as well as long-term sustained symptomatic improvement at three years posttreatment (45). Interestingly, the long-term follow-up also showed some "sleeper effects" (such as an improvement

in quality of life), which were not seen in the immediate or short-term follow-up, suggesting sustained and meaningful change. Our group has also published a number of detailed review articles outlining the MCT process (34, 35, 46, 47) to which we refer the reader. Recent meta-analyses (50) also indicate that MCT has a significant impact on delusions, as well as on positive symptoms.

Rather than directly discussing the individual's beliefs and experiences, MCT presents a series of semi-didactic modules where participants learn about various cognitive biases and cognitive processes associated with belief formation, delusions and hallucinations.

Common Elements in MCT and CBT

MCT and CBT take slightly different approaches to the treatment of psychosis (that we can think of as "back door" versus "front door," respectively). The emphasis in CBTp is on the content of the delusions, whereas MCT focuses primarily on the biases in the underlying mechanisms. However, it is worth reiterating that directly challenging delusions in a confrontational manner is typically counterproductive, and CBT aims to increase insight into maladaptive thinking processes in an indirect manner. There is substantial overlap in the underlying processes in MCT and CBT. What follows is a brief discussion of these common therapeutic components.

Psychoeducation

Both CBT and MCT have a psychoeducational component with the aim of normalizing psychotic symptoms by placing them on a continuum of experiences (29). Psychoeducation serves as a building block from which individuals can begin to understand their own symptoms. Although psychoeducation is often provided as an introductory module in CBT and is addressed throughout MCT, in both treatments it serves as a way of putting symptoms in context. In MCT, psychoeducational concepts are woven into the program material, such that research findings regarding cognitive biases and distortions are addressed as part of individual topics. For example, in the Attribution module of MCT, attributional biases are addressed in the transfer to everyday life section, outlining the specific attributional errors that have been linked to psychosis. In CBT, psychoeducation is often provided as a specific module or section, outlining the cognitive model of psychosis and explaining symptoms as one end of a continuum of human experience. In addition to the emphasis on normalizing experiences, psychoeducation also serves to outline the cognitive model of psychosis. By linking thoughts, feelings and behaviors, the psychoeducational component of CBT also serves as the basis to develop behavioral experiments or testing assumptions, a key component of both MCT and CBT. Thus, although MCT and CBT differ in their delivery of psychoeducation, the purpose of including such material is the same: helping clients normalize and then start to formulate alternative explanations for their experiences.

Increasing Cognitive Flexibility

Psychotherapy aims to allow individuals to evaluate their beliefs and learn to consider whether the information is accurate. Both MCT and CBT seek to increase cognitive flexibility by increasing clients' abilities to evaluate their own beliefs. Both MCT and CBT seek to elucidate clients' beliefs about their symptoms and help clients evaluate the accuracy of the belief and the emotional and behavioral sequelae of holding the belief (35). CBT seeks to achieve this by outlining how thoughts, emotions and behaviors are related and encouraging clients to develop alternative explanations for experiences or events. This may be done by asking clients to generate evidence for and against a belief, by asking clients to engage in behavioral experiments to check out a belief or by asking clients to challenge thoughts that are inaccurate (e.g., all or nothing thinking). Increasing cognitive flexibility can take several forms in CBT for psychosis. Depending on the specific treatment targets for a CBT intervention, more or less focus may be given to changing beliefs (48) or increasing coping (49). Some CBT models may emphasize gathering disconfirmatory evidence for problematic beliefs, while some may emphasize adaptive behavioral coping. Regardless, an emphasis on developing a more flexible array of cognitive and behavioral responses is a key part of CBT.

In comparison to CBT, MCT approaches increasing cognitive flexibility more indirectly. In outlining cognitive biases in general, MCT seeks to highlight areas of thinking that individuals with psychosis may struggle with. Rather than elucidating individual beliefs or cognitive distortions and directly challenging them, MCT discusses cognitive biases in general and then links these, through the use of research findings, to psychosis. For example, in CBT, a clinician may ask a client to complete a thought record where cognitive distortions are directly identified; in contrast, an MCT clinician would ask a client for a time when they drew a conclusion that turned out to be faulty rather than attack the underlying belief directly. In MCT, clients are encouraged to examine general (not personal or delusion relevant) scenarios and attempt to generate alternative explanations

for events; in CBT, this is often focused on the clients' own beliefs (particularly ones central to their functioning) or life events. In addition, homework assignments in MCT are often focused on identifying times in the client's life that he or she may have misinterpreted an event or experience and ended up experiencing negative consequences rather than directly elucidating the relationship between problematic beliefs and negative emotions as is often done in CBT. The aim is that the client can, over time, utilize this approach to both neutral and delusion relevant content. This is done to a greater extent in session in the individual format MCT (that we refer to as MCT+). MCT may prove less threatening to individuals with highly evolved delusions systems or intense emotional responses to beliefs.

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Behavioral Experiments

In addition to providing psychoeducation about symptoms and attempting to improve cognitive flexibility, both MCT and CBT seek to solidify clients' understanding of the therapeutic material by having them implement experiments to test their assumptions. In CBT, this is often carried out by the explicit identification of actions that can be taken or evidence that can be gathered to test out a particular belief. For example, if one believes a family member is upset at him or her, a CBT behavioral experiment may be to ask that person directly and evaluate the evidence obtained. In MCT, behavioral experiments are also present but in a different form. Due to the focus of MCT on thinking in general rather than any individual client's specific beliefs, behavioral experiments are more loosely constructed around the consequences of using certain thinking styles rather than directly challenging a client's belief. For example, an MCT homework assignment might ask clients to distinguish between a depressive appraisal of an event and a more helpful appraisal. In CBT, experiments are designed and evidence gathered and this data are used to enhance cognitive restricting; in MCT, the consequences of particular ways of thinking are elucidated and this is used to support the client in contemplating changing unhelpful beliefs. The goal is the same: to help clients see the impact of their interpretations and assumptions on outcomes but is approached in a looser and more indirect fashion.

Improving Coping Mechanisms

The improvement of maladaptive coping styles is a component of both CBT and MCT. In the cognitive model of psychosis, coping styles are conceptualized as the behavioral response to symptoms. Responses may be helpful or maladaptive and serve to maintain problematic beliefs and potentially worsen symptoms (e.g., isolating self when voices are present, leading to increased voices and distress). Thus, modifying these coping styles can be an important tool in reducing distress. Furthermore, increasing adaptive coping may also serve to provide potentially disconfirmatory evidence for problematic beliefs. In CBT, the link between thoughts, feelings and behaviors is often outlined at the beginning of the intervention. This model is used to help clients draw links between their experiences, their interpretations of experiences and behavioral responses. CBT often involves a direct examination of what clients are doing to cope with symptoms, and challenges clients to identify the result of these strategies. In this way, clients can be supported in maintaining healthy coping strategies, minimizing maladaptive coping strategies, and developing new coping strategies.

As MCT is focused more directly on cognitive biases, clients' specific behavioral responses may or may not be evaluated. Rather clients are encouraged to think of different ways of responding to particular situations that acknowledge the existence of multiple causes for events. Thus, adaptive coping is couched in the idea that developing and acting upon conclusions with little evidence may have negative consequences. Developing a coping repertoire is a key factor in assisting clients in generalizing knowledge from either CBT or MCT. Without addressing clients' behavioral responses to beliefs (either directly or indirectly) or their opportunities to gather additional data, the clients' ability to challenge inaccurate beliefs is limited. Both CBT and MCT acknowledge that intellectual knowledge alone may not be helpful in altering real-world functioning. Thus, having a client acknowledge that a belief might be inaccurate may be less powerful than having the client inhibit a maladaptive coping strategy in relationship to that belief ("therefore I must do everything the voices say"). The inclusion of coping as a dimension of both CBT and MCT may assist clients in improving functioning, even in the face of recalcitrant beliefs.

Conclusions

Over the last two decades, there has been a growing body of evidence suggesting that psychosocial interventions can play an important role in improving symptomatology and quality of life in individuals experiencing psychosis. CBT and MCT are two of the most well-researched forms of psychotherapy for psychosis that we hope will continue to be developed and adapted in a global context. Further research

now needs to explicate which approach is better suited to particular clients (e.g., MCT may be better suited to clients with lower illness insight as it does not typically target delusional content), and at what stages of the illness (e.g., MCT may more efficacious in first-episode psychosis).

In addition to providing psychoeducation about symptoms and attempting to improve cognitive flexibility, both MCT and CBT seek to solidify clients' understanding of the therapeutic material by having them implement experiments to test their assumptions.

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