SMGroup

Social Cognition Based Therapies for People with Schizophrenia: Focus on Metacognitive and Mentalization Approaches

Fernando Lana* , María África Cruz, Víctor Pérez and Josep Martí Bonany

Institute of Neuropsychiatry and Addictions (INAD), Parc de Salut Mar, Centro de Investigación en Red de Salud Mental (CIBERSAM). Department of Psychiatry, Autonomous University of Barcelona, Barcelona

***Corresponding author:** Fernando Lana, Institute of Neuropsychiatry and Addictions (INAD), Emili Mira Center, Parc de Salut Mar, Barcelona. Department of Psychiatry, Autonomous University of Barcelona, Barcelona. Spain. Email: FLanaMoliner@parcdesalutmar.cat

Published Date: March 13, 2017

ABSTRACT

Schizophrenia is one of the most disabling conditions in medicine, causing deficits in neurological, psychological and social function. Antipsychotic medications are the first line of treatment and these are effective for many of the symptoms of psychosis. However, disability rates among patients with schizophrenia have changed little over the past century. For this reason, interest in adjunctive non-pharmacological treatments has been growing. Social cognitive dysfunction has been shown to be a persistent feature of this disorder, remaining stable over the course of schizophrenia despite the use of clinically effective psychopharmacological and psychosocial treatment. Social cognition appears to be an independent construct that differs from positive symptoms that is only partially accounted for by negative symptoms and impairment in neurocognition. In recent years, several specific treatment programs have been developed to directly address impairments in this important area. These treatments vary in their approach depending on whether they conceptualize social cognition impairments

Copyright © Lana F.This book chapter is open access distributed under the Creative Commons Attribution 4.0 International License, which allows users to download, copy and build upon published articles even for commercial purposes, as long as the author and publisher are properly credited.

quantitatively as "deficits" or qualitatively as "dysfunctions". Dysfunction models view such impairments not as inabilities or restricted abilities, but rather as the result of errors in social cognitive processes of existing abilities. In this context, the aim of this narrative review is to describe the novel psychological interventions developed in recent years whose main aim is to address the underlying social cognitive processes that contribute to the formation of positive symptoms. Importantly, the approach taken by these new therapies stands in contrast to conventional treatments, which target the personal delusional beliefs. All of these new therapies share a focus on the thinking process rather than on the accuracy of thoughts and beliefs (i.e., the content of thinking). Their principal aim is to stimulate and improve the patient's capacity to think about thinking, the metacognitive (or mentalizing) capacity. Metacognitive and mentalizing-based therapies are still in their infancy, but initial results are encouraging, showing that these approaches are both feasible and beneficial in people with schizophrenia.

INTRODUCTION

Schizophrenia is among the most disabling of all conditions, particularly among psychiatric disorders. It is a complex disorder, defined by the World Health Organization **(WHO)** as "involving the most basic functions that give the normal person a feeling of individuality, uniqueness and self-direction" [1]. The causes of schizophrenia are believed to involve numerous different genetic and environmental factors [2]. Individuals with schizophrenia present deficits in various areas, including neurological, psychological, and social function. Consequently, schizophrenic disorders are associated with fewer social connections, lower employment rates, and impaired ability to live independently [1]. Accordingly, outcome assessments must include at least three domains that do not co-vary over time: symptom severity, functional impairment (including cognitive deficits), and social and occupational disability [2]. Antipsychotic drugs are usually the first line of treatment for schizophrenia and use of these medications is associated with lower mortality rates, especially suicide, and these drugs are effective in preventing relapse [2,3]. Nonetheless, available evidence shows that disability among patients with schizophrenia has changed little over the past century, despite the availability of medications that reduce psychotic symptoms in most patients [4]. For this reason, interest in adjunctive non-pharmacological treatments is growing.

In recent years, several different lines of investigation in neuroscience have found that schizophrenia is a disorder of the 'social brain', defined as the higher cognitive and affective systems in the brain that evolved as a result of increasingly complex social selective pressures [5]. Disorders of the 'social brain' include the negative symptoms "asociality" and "avolition", abnormal cortical activation patterns during social tasks, and deficits in social cognition and social skills [6].

Cognition is the mental process of acquiring knowledge and understanding through thought, experience, and the senses. More generally, the term cognition refers to thinking abilities, which include multiple processes ranging from isolated processes such as attention and working memory (the focus of cognitive remediation therapies **(CRT)**) to the form and content of thought (the focus of cognitive behavioural therapies **(CBT)**). Neurocognition encompasses all of the basic processes that allow one

Copyright © Lana F.This book chapter is open access distributed under the Creative Commons Attribution 4.0 International License, which allows users to download, copy and build upon published articles even for commercial purposes, as long as the author and publisher are properly credited.

to learn about, understand, and know the world one lives in [7]. It is widely held that neurocognitive deficits represent a core feature of schizophrenia and that these impairments are consistently correlated with functional disability in patients [8,9]. In schizophrenia research, eight separate neurocognitive areas have been identified and considered to be of primary interest: attention/vigilance; processing speed; working memory (non-verbal); memory (non-verbal); verbal learning; visual learning; reasoning and problem-solving; and social cognition [2,7]. While most cognitive processes are neuropsychological, some are primarily used for social interactions: how people perceive, interpret, and process social information [10]. Some authors [11] have distinguished between social and non-social cognition, both of which share several overlapping cognitive processes; however, some brain regions are specifically involved in the former processes [4].

The aim of this narrative review is to provide an update on specific therapies developed to directly address impairments in social cognition in patients with schizophrenia. First, we briefly review the concept of social cognition as well as the treatment approaches that consider social cognition impairments to be 'deficits' and, therefore, apply social cognitive remediation techniques. Then, we evaluate therapies that understand social cognition impairments to be errors in the mental processes of existing abilities. Overall, the main focus of this review is to assess treatment approaches that not only address the accuracy of thoughts and beliefs (i.e., the content of thinking) but those whose principal aim is to stimulate and increase the person's capacity to think about thinking, defined as the metacognitive or mentalizing capacity.

SOCIAL COGNITION

The term social cognition came to prominence in the late 1960s and early 1970s in the field of social psychology. However, the term is now widely used in many disciplines, including neuroscience, developmental psychology, clinical psychology, and psychiatry [12]. Social cognition is a multifaceted construct that refers to the cognitive ability to perceive, interpret, and generate responses to social interactions [7]. Social cognition can be generally defined as "the ability to construct representations of the relations between oneself and others and to use those representations flexibly to guide social behaviours" [13].

Research on social cognition in schizophrenia has recently benefited from a dramatic surge of knowledge in social neuroscience [6,11]. A wealth of evidence shows that social cognitive deficits constitute a persistent feature of the disorder that remain present throughout the course of schizophrenia even when patients receive clinically effective psychopharmacological and psychosocial treatment [14]. For this reason, social cognition appears to be an independent construct [15] that is different from positive symptoms and only partially accounted for by negative symptoms and neurocognitive impairment [2]. Furthermore, social cognitive impairments have trait-like qualities that may precede the onset of the disorder, are present early in the illness, and are candidate endophenotypes for schizophrenia [4]. Interestingly, research has suggested that social cognition may provide insights into the development and persistence of functional disability in individuals with schizophrenia [11].

Copyright © Lana F.This book chapter is open access distributed under the Creative Commons Attribution 4.0 International License, which allows users to download, copy and build upon published articles even for commercial purposes, as long as the author and publisher are properly credited.

Specifically, social cognition may act as a direct predictor, mediator, or moderator of social functioning, supported by the fact that impairments in social cognition are closely associated with poor social and community functioning in schizophrenic patients [2,15].

Although social cognition in healthy individuals has been well-studied, several unresolved issues present an ongoing challenge for productive schizophrenia research. First, there is no consensus on exactly which abilities define the construct and considerable conceptual overlap exists among the domains [10]. Secondly, the most widely used measures of social cognition are heterogeneous with poor psychometric properties [16]. The SCOPE (Social Cognition Psychometric Evaluation) study was conducted to address these issues. The primary goals of SCOPE were to reach a consensus on the social cognitive domains in schizophrenia and to identify and improve the psychometric properties of existing measures for use in clinical trials [16-18]. Using the RAND Appropriateness Method, experts identified 4 core domains of social cognition—emotion processing, social perception, theory of mind/mentalizing, and attributional style/bias; notably, social metacognition and social reciprocity were not included among these key domains [10,17]. Therefore, in schizophrenia research, four social cognitive domains have been identified, all of which are commonly impaired in these patients. These domains are defined below:

Emotion Processing

Emotional processing is broadly defined as perceiving and using emotion to facilitate adaptive functioning [19]. This domain encompasses both simple (perception and recognition of emotions) and complex (management and regulation of emotions) sub processes [12]. Some models of emotional processing overlap with the concept of 'emotional intelligence' [7,19].

Social Perception

Social perception is broadly defined as decoding and interpreting social cues in others [12]. This domain refers to a person's ability to judge social cues from contextual information and communicative gestures, including awareness of the roles, rules, and goals that typically characterize social situations and guide social interactions [7]. In social perception tasks, participants must process nonverbal, paraverbal, and/or verbal cues to make inferences about complex or ambiguous social situations. Individuals may be asked to identify interpersonal features in a situation such as status, veracity, mood state or intimacy i.e., a person sees two unfamiliar people and knows, without interacting with them, that they are in a romantic relationship [12,19].

Theory of Mind

The theory of mind (also called mental state attribution or mentalizing) typically involves the ability to infer the intentions, dispositions, and beliefs of others [20,21]. This domain involves the ability to understand false beliefs, hints, intentions, humour, deceptions, metaphor and irony [7,12]. An example would be understanding that your friend's statement about "how delicious your piece of pie looks" most likely means: "I would like you to share it with me" [12].

Copyright © Lana F.This book chapter is open access distributed under the Creative Commons Attribution 4.0 International License, which allows users to download, copy and build upon published articles even for commercial purposes, as long as the author and publisher are properly credited.

Attributional Style

Attributional style refers to how individuals characteristically explain the causes of positive and negative events in their lives. Unlike mental state attribution (theory of mind), attributional bias or style reflects how people typically infer the causes of particular positive and negative events [19]. Attributions are causal statements and one can distinguish between external personal attributions (i.e., causes attributed to other people), external situational attributions (i.e., causes attributed to situational factors), and internal attributions (i.e., causes due to oneself). For example, if someone does not return your telephone call, you could suppose that he/she is purposely ignoring your call, or you could think that he/she may not have received the message. Frequently, individuals with persecutory delusions attribute negative outcomes to others, rather than to situations. This is known as a personalizing bias [22].

SOCIAL COGNITIVE TREATMENT APPROACHES

Given that people with schizophrenia generally have worse social cognitive performance than healthy individuals, a number of specific treatment programs have been designed in recent years to directly address the social cognition impairments in these patients. The approach used by these specific treatment programs depends on whether the impairments in social cognition are conceptualized quantitatively as "deficits" or qualitatively as "dysfunctions". Deficit models interpret social cognitive impairments in terms of inabilities or restricted abilities (i.e. neuropsychological deficits), whereas dysfunction models understand such deficits to be errors in social cognitive processes of existing abilities [15]. In recent decades, most dysfunction models have been based on bias models that consider these social cognition dysfunctions to be errors in judgment due to thinking distortions and processing preferences. CBT for psychosis, one of most developed non-pharmacological treatment for psychosis, is based on bias models but its principal aim is to reduce the distress and interference with functioning caused by positive symptoms and the person's attempts to understand them [22]. Consequently, empirical evaluations of these therapies have generally used positive symptoms rather than social cognitive performance as primary outcome measures [15]. Novel psychological interventions for individuals with schizophrenia are starting to focus on the underlying social cognitive processes that contribute to the formation and maintenance of positive symptoms [23] rather than on targeting the idiosyncratic delusions specific to the individual client [24]. What all new therapies share is their special focus on the thinking process rather than on the content of thinking itself; the principal aim of these therapies is to stimulate and increase the capacity to think about thinking—the metacognitive or mentalizing capacity, two closely-related terms often used interchangeably [25,26]. Nevertheless, due to heterogeneity across the spectrum of schizophrenic disorders, both deficits and dysfunctions may contribute to maladaptive social functioning in these patients. Treatment programs that are based on social cognitive deficits have proposed different cognitive-remediation style interventions, in contrast to treatments based on cognitive dysfunction, which have developed several metacognitive and mentalization approaches that focus on social cognitive processes as the primary target.

Copyright © Lana F.This book chapter is open access distributed under the Creative Commons Attribution 4.0 International License, which allows users to download, copy and build upon published articles even for commercial purposes, as long as the author and publisher are properly credited.

Social Cognition Remediation Programs

Overall, most treatment programs implicitly or explicitly consider social cognition impairments to be 'deficits' and thus these treatment programs use cognitive-remediation techniques to improve the processing of social information. These approaches have been classified by Wölwer et al. [15] as either 'targeted' or 'broad-based' (Table 1). The most highly-targeted interventions seek to improve only one social cognitive domain (i.e., theory of mind, emotion perception, social perception, or social attribution biases), while more broad-based strategies include a number of social cognitive targets, (e.g., social perception) and/or also address basic neurocognitive processes such as attention and memory and/or also include social behavioural skill training [15].

Table 1: Social cognition remediation programs**.**

Targeted approaches	Attentional shaping to improve emotion perception deficits (Penn & Combs, 2000) [27].
	Training of Affect Recognition **(TAR)**, a program primarily targeting facial affect recognition (Fromman, Streit & Wölwer, 2003) [28].
	Emotional Management Training **(EMT)** to improve emotion perception (Hodel, Kern & Brenner, 2004) [29].
	The micro-expression training tool **(METT)**, an emotion perception remediation training (Russel, Chu & Phillips, 2006) [30].
Broad-Based approaches	Training of Emotional Intelligence **(TEI)** (Vauth et al., 2001) [31].
	Instrumental Enrichment Program **(IEP)** (Roncone et al., 2004) [32].
	Social Cognition and Interaction Training **(SCIT)** (Penn et al., 2005) [33].
	Social Cognition Enhancement Training **(SCET)** (Choi & Kwon, 2006) [34].
	Social Cognitive Skills Training **(SCST)** (Horan et al., 2009) [35].
	Social Cognition Training Program **(SCTP)**, a hybrid of TAR, Emotion Training Program, SCIT, and social perception subprogram of IPT (Gil Sanz et al., 2009) [36].
	Emotion and Theory of Mind Imitation Training **(ETIT)** (Mazza, 2010) [37].
	Mental-State Reasoning Training for Social Cognitive Impairment (SoCog-MSRT) (Marsh et al., 2013) [38].
	Metacognitive and social cognition training **(MSCT)**, a hybrid of SCIT, SCST and metacognitive training (Rocha & Queirós, 2013) [39].
	Social Ville, a neuroplasticity-based online social cognitive training program (Nahum et al., 2014) [40].
Integrated Approaches	Integrated Psychological Therapy **(IPT)** combines neurocognitive and social cognitive interventions with social skill approaches (Roder, Studer & Brenner, 1987) [41].
	Integrated neurocognitive therapy **(INT)** combines neurocognitive and social cognitive enhancement interventions (Mueller, Schmidt & Roder, 2015) [42].
	Cognitive Enhancement Therapy **(CET)** integrates rehabilitation of social cognitive and neurocognitive deficits and psychoeducation (Hogarty & Flesher, 1999) [43].
	Ecological Treatment combines neurocognitive remediation therapy with either a social cognitive training **(SCT)** or a theory of mind intervention (Bechi et al., 2015) [44].

Although the differentiation between broad-based and targeted approaches should be taken as end points on a continuum rather than as strict categorical distinctions, broad approaches, as the term implies, seek to improve multiple areas of social cognition. Only those approaches that explicitly target social cognitive processes have been included while programs that focuses primarily on improving social behavioural skills, following Wölwer et al. [15], have been excluded from social cognition

Copyright © Lana F.This book chapter is open access distributed under the Creative Commons Attribution 4.0 International License, which allows users to download, copy and build upon published articles even for commercial purposes, as long as the author and publisher are properly credited.

remediation programs. In short, a wide range of these remediation interventions (Table 1) is currently available, most of which have shown promising results. A recent meta-analysis [45,46] found that social cognitive training procedures have moderate-to-large effects on facial affect recognition and small-to-moderate effects on theory of mind, while effects on social cue perception and attributional style are not significant. For measures of generalization, that meta-analysis found moderate-large effects on community and institutional function. Effects on positive and negative symptoms of schizophrenia, however, are not significant [45]. To date, direct comparisons between targeted and broad-based interventional approaches are scant and therefore the optimal treatment strategy remains unclear at this time. One trial evaluated patients with schizophrenia treated with domain-specific CRT, with patients randomly assigned to one of three groups: video-based social cognitive training; a theory of mind intervention; and an active control group [44]. Results showed that theory of mind measures improved significantly in both the social cognitive and theory of mind groups but not in the active control group. These outcomes were not influenced by baseline social cognitive and neurocognitive functioning, nor by cognitive improvement after CRT. Other authors have found that although social cognition requires intact neurocognition, standard neurocognitive training alone is neither necessary nor sufficient to improve social cognitive processes [15].

Metacognitive and Mentalization Approaches

As previously discussed, metacognitive and mentalization interventions are based on conceptual models which understand social cognition impairments qualitatively (poor performance of existing abilities) rather than as performance deficits and limitations in mental capacity [24]. Until recently these models have had little influence on the development of social cognitive treatments [15], nor do they use social cognition as a primary treatment target and outcome measure for schizophrenia therapy. Metacognitive approaches are rooted in cognitive/behavioural theories whereas mentalization approaches are rooted in psychodynamic models; despite these differences, both approaches focus on the subject's mental state and the mental states of others rather than on the content of thinking itself [2,25,47]. Ultimately, these treatment approaches also target psychotic symptoms, but they take a "back-door approach" to these symptoms by first attempting to improve general social cognitive processes before examining specifically how these deficits may lead to problems in everyday life and to psychotic symptoms [26,48,49]. Although metacognitive and mentalization approaches are still in their infancy as treatments for schizophrenia, the initial efficacy results are encouraging, showing that several specific interventional approaches yield improvements in social cognition performance [26,50-52].

Metacognitive therapies

Although the definition of metacognition has varied over time, it is generally used to refer to the ability (or abilities) involved in recognizing and understanding one's own cognitive processes (as well as the mental states of others) and to the ability to detect errors in these processes, to think about feelings, and to detect the reactions triggered by these thoughts and feelings [25,53,54]. Lysaker et al. [54], based on concepts developed by other authors [55,56], proposed a definition of metacognition that includes four fundamental aspects:

Copyright © Lana F.This book chapter is open access distributed under the Creative Commons Attribution 4.0 International License, which allows users to download, copy and build upon published articles even for commercial purposes, as long as the author and publisher are properly credited.

a. Self-reflectivity or understanding of one's own mind: the ability to think about one's own thoughts and emotions.

b. Understanding the other's mind: the ability to think about the thoughts and emotions of others.

c. Decentration: the ability to understand that you are not the centre of the world and people's lives continue when you are not around.

d. Mastery: the ability to use the three aforementioned aspects to define psychological problems in order to implement effective action strategies to adequately deal with these issues.

In the last twenty years, metacognitive dysfunction has been widely recognized as a feature of schizophrenia [21] that is related to deficits in daily life functioning [53,54]. For example, individuals with schizophrenia present difficulties in forming ideas about what other people are thinking and feeling on the basis of visual or verbal cues; they also have difficulties recognizing themselves as the source of their own thoughts and actions [25]. Although metacognition function appears to be trait-like in schizophrenia, it can be influenced by the intensity of emotions and beliefs across different situations [55]. As metacognition impairments tend to be unresponsive to pharmacotherapy and other treatments, several manualized metacognitive based therapies for schizophrenia have been proposed.

Metacognitive narrative psychotherapy: Metacognitive narrative psychotherapy for people with schizophrenia was proposed by Lysaker et al. [25,54] and further developed by other authors [53,57]. Metacognitive Reflection and Insight Therapy **(MERIT)** is an individual, manual-based, narrative therapy that seeks to promote the four elements of metacognition in patients with schizophrenia [25]. It is currently being evaluated in a multicenter randomized controlled trial **(RCT)** [53]. MERIT is not a step-by-step treatment; instead, the therapist encourages the patient to tell a personal story while the therapist looks for signs of metacognition in this personal narrative [52,53] in order to evaluate the patients' current level of metacognitive functioning. Patients with a lower metacognitive capacity need interventions to learn how to master basic metacognition capacities before more complex ones can be learned [25]. MERIT is built on eight core principles [58,59] that the therapist must adhere to in every treatment session (Table 2). Multiple case reports and two pilot studies have documented the value of this treatment approach [57,59,60]. A shortened version of MERIT (12 vs. 40 sessions) is also available [52].

Table 2: Metacognitive Reflection and Insight Therapy: Eight core principles.

1. The Preeminent Role of the Patient's Agenda
2. The Introduction of the Therapist's Thoughts
3. The Narrative Episode
4. The Psychological Problem
5. Reflecting on Interpersonal Processes
6. Reflecting on Progress
7. Stimulating Self-reflectivity and Awareness of the Others' Mind
8. Stimulating Mastery

Copyright © Lana F.This book chapter is open access distributed under the Creative Commons Attribution 4.0 International License, which allows users to download, copy and build upon published articles even for commercial purposes, as long as the author and publisher are properly credited.

Meta cognitive training (MCT): MCT is a manualized training program influenced by CBT, CRT and psychoeducational approaches to psychosis. MCT was developed by Moritz and Woodward during the years 2002-2003 [24,49]. It is a low-threshold, low-intensity group intervention (up to 16 sessions lasting ≤ 60 minutes each) which adopts a metacognitive perspective (i.e., "thinking about one's thinking") whose aim is to enhance patient awareness of the cognitive biases underlying the development and maintenance of psychotic symptoms [61]. This approach could be advantageous for patients who cannot distance themselves from their delusions or whose positive symptoms actually foster their self-esteem [62]. The training is delivered by a health care specialist in small groups (3-10) of schizophrenia spectrum patients. Version 6.0 of the MCT manual [63] adds two additional modules to the original 8 modules (Table 3).

Table 3: Meta-cognitive training: the eight initial modules and two additional ones.

Module 1: Attribution – Blaming and Taking Credit.
Module 2: Jumping to Conclusions I.
Module 3: Changing Beliefs.
Module 4: To Empathize I.
Module 5: Memory – Over-confidence in errors.
Module 6: To Empathize II.
Module 7: Jumping to Conclusions II.
Module 8: Mood – Negative cognitive schemata.
Additional Module I: Self-Esteem.
Additional Module II: Dealing with Prejudices (Stigma).

RCTs have shown that MCT is feasible and improves positive symptoms and cognitive biases [48,64,65]. Moreover, these improvements are sustained 3 years after training and also lead to a delayed improvement in quality of life and self-esteem [61]. Two recent meta-analyses, one conducted by Moritz's group [66] and the other by an independent group [67] have demonstrated that MCT exerts a small-to-moderate effect on delusions [66] and positive symptoms [66,67]. However, another independent meta-analysis [68]—which, it should be noted, was criticized by Moritz el at. [69]—reported negative results, concluding that MCT is not recommended in routine clinical practice.

Other authors have modified MCT for use in other clinical scenarios. MCT+ is an individualized version of MCT (up to 12 sessions) that targets patient-specific problems in a more detailed manner that is not possible in group therapy [49]. Another version of MCT has been developed to target early phases of psychosis [70].

Metacognitive therapy for schizophrenia: Traditional CBT evaluates the accuracy of thoughts and beliefs about self and the world because it assumes that emotional distress is influenced by unhelpful or distorted beliefs. Metacognitive therapy, by contrast, assumes that emotional distress is linked to metacognitive beliefs about the usefulness, controllability and danger of perseverative processing such as worry or rumination [71]. Accordingly, metacognitive therapy encourages patients to develop a detached awareness of thoughts and to reduce cognitive attentional syndrome (worry/rumination

Copyright © Lana F.This book chapter is open access distributed under the Creative Commons Attribution 4.0 International License, which allows users to download, copy and build upon published articles even for commercial purposes, as long as the author and publisher are properly credited.

and unhelpful attentional strategies). Metacognitive therapy [72] is a very different concept from metacognitive training [61] despite the similar name and identical acronym **(MTC)**. However, the primary target of both is social cognitive processes rather than idiosyncratic delusional personal beliefs. Morrison et al. [71] adapted Wells' metacognitive model of generalized anxiety disorder [72] to people with schizophrenia. That treatment consists of detached mindfulness, reduction or postponement of unhelpful control strategies, evaluation of positive and negative metacognitive beliefs and, if indicated, attention training [73]. An open trial yielded preliminary evidence that this therapy is both feasible and beneficial in individuals with psychosis [73].

Mentalization-based therapies

Mentalizing is a form of social cognition that allows us to perceive and to interpret (implicitly and explicitly) human behaviour as meaningful on the basis of intentional mental states [47]. Mentalizing deficits play an important role in the development of various psychiatric disorders involving pathology of the self (e.g, impaired capacity to infer mental states in oneself and others) and may complicate the development of a therapeutic alliance and treatment engagement [74]. Although our capacity for mentalizing is, to a certain extent, "prewired", this capacity is largely a developmental achievement first acquired in the context of attachment relationships and is dependent on the extent to which our early and later environment fosters a focus on internal mental states [75]. For example, parents who display a poorly mentalized response to infants can undermine the development of social cognitive capacities, especially the regulation of affect and the functioning of focused attention [47]. Although mentalizing has been criticized, justifiably so, because the original formulation of the concept was too broad and multifaceted to be operationalized [47], subsequent modifications have made mentalizing more operational. Neuroimaging and developmental social and cognitive research have shown that mentalizing is not a unitary, one-dimensional capacity but is instead organized around four polarities: (a) Implicit-automatic versus explicit-controlled mentalizing, (b) Mentalizing with regard to self and to others, (c) Mentalizing based on internal versus external features of self and others, d) Cognitive versus affective mentalizing [47,75]. Accordingly, different types of psychopathology can be characterized by their different mentalizing profiles [75].

Mentalization-based therapy **(MBT)** [76,77] is a psychodynamically-oriented manualized psychotherapy initially developed to treat borderline personality disorder and several RCTs have shown this therapy to be moderately to highly effective [78,79]. The overall aim of MBT is to improve mentalizing in the context of attachment relationships. The patient should discover how he/she thinks and feels about him (her)self and others, how that dictates responses, and how errors in understanding oneself and others can lead to problematic actions [76]. In recent years, therapies that include mentalizing as a central component have been developed to treat various disorders, including antisocial personality disorder, substance abuse, eating disorders, and psychotic disorders [26]. Moreover, there is a growing recognition that individuals with psychotic-spectrum disorders may present disturbances in thinking abilities related to awareness of the self and others, and several meta-analyses have shown that mentalizing in schizophrenic patients and in individuals with attenuated psychotic symptoms is

Copyright © Lana F.This book chapter is open access distributed under the Creative Commons Attribution 4.0 International License, which allows users to download, copy and build upon published articles even for commercial purposes, as long as the author and publisher are properly credited.

anomalous [51,74,80]. Furthermore, social cognitive capacity is related to person's awareness that he/she has a mental disorder and improving mentalization in these cases could also reduce social stress reactivity-a risk factor for the development of psychotic symptoms [26].

Mentalization-based treatment for psychotic disorder (MBT-P): MBT-P is based on the MBT manual [76] and its primary aim is to specifically improve social functioning by targeting the social cognitive process called "mentalizing" in patients with non-affective psychotic disorders [26]. Compared to the original MBT, the key elements and the duration of MBT-P (18 months) remain unchanged. This therapy combines group therapy (weekly 1-hour sessions) and individual therapy (biweekly, half-hour sessions). A description of the key features and basic clinical interventions of MBT-P has been provide by a recent revision [51]. Multiple case reports have documented the value of this treatment approach [51,74,81] which it is currently being evaluated in a RCT [26].

Brief mentalization-based group psychotherapy for psychotic disorders (B-MBGT): B-MBGT was developed based on previous experience with a psychotherapeutic program for patients with severe personality disorders (45% of whom had transient psychotic episodes) that integrated MBT with other group therapies [82–84]. B-MBGT has been developed since 2012 and it is based on the explicit mentalizing techniques and exercises included in the MBT manual [76]. Explicit mentalizing is conscious, verbal, and reflective; it requires attention, intention, awareness, and effort. By contrast, implicit or automatic mentalizing is non-conscious, nonverbal, and unreflective [47]. Ultimately, the aim of B-MBGT is to improve social functioning, self-stigma, and psychotic symptoms; however, like metacognitive therapies, this therapy uses a "back-door approach" in which social cognitive process (i.e., "mentalizing") are addressed first [85,86].

B-MBGT therapy focuses on increasing understanding of the following six main areas: personal characteristics; motives; attitudes; emotions; what makes me "me"; and, finally, understanding self through other. Each group session starts with a brief exercise to refresh the subject's understanding of the mentalization concept. The sessions are organized as follows [85]. Patients sit at a table facing a blackboard on which that day's task is shown. They are encouraged (but not required) to write down on a sheet of paper whatever thoughts they are mentalizing after a set of questions have been presented. At the first session, they are clearly informed that anything they write is private and will not be collected or checked by the therapists under any circumstances. Patient responses to each question are noted on the blackboard in a line, without specifying the patient's name. After all answers have been put on the board, each response is evaluated in a sequence called the "mentalization line". Finally, at the end of the session, all of the responses are discussed (mentalized). Starting with the 7th session, basic mentalizing interventions are introduced to stimulate implicit understanding [76].

B-MBGT has two versions. One version (which omits the component "understanding self through others") is designed for use in a day hospital (maximum of 12 weekly, 60-minute sessions). The other version is designed for outpatient settings (24 biweekly, 60-minute sessions). Two open studies have been conducted and the preliminary finding in those studies supports the feasibility and benefit of this treatment in psychosis [85,86].

Copyright © Lana F.This book chapter is open access distributed under the Creative Commons Attribution 4.0 International License, which allows users to download, copy and build upon published articles even for commercial purposes, as long as the author and publisher are properly credited.

CONCLUSIONS

People with schizophrenia may present disturbances in thinking abilities related to metacognitive or mentalizing capacities. As these impairments tend to be nonresponsive to pharmacotherapy and other treatments, several manualized metacognitive and mentalizing based approaches have been proposed. Although, these therapies are still in the very early stages of development, the initial results are encouraging, suggesting that these approaches are both feasible and beneficial in individuals with schizophrenia.

ACKNOWLEDGEMENTS

We wish to thank Bradley Londres for his invaluable assistance in editing the manuscript.

References

1. World Health Organization. The ICD-10 Classification of Mental and Behavioural Disorders: Clinical Descriptions and Diagnostic Guidelines. Geneva. WHO. 1992.
2. Galletly C, Castle D, Dark F. Royal Australian and New Zealand College of Psychiatrists clinical practice guidelines for the management of schizophrenia and related disorders. Aust New Zeal J Psychiatry. 2016; 50: 410-472.
3. National Institute for Health and Care Excellence. Psychosis and Schizophrenia in Adults: Treatment and Management. London. 2014.
4. Green MF, Horan WP, Lee J. Social cognition in schizophrenia. Nat Rev Neurosci. 2015; 16: 620-631.
5. Burns J. The social brain hypothesis of schizophrenia. World Psychiatry. 2006; 5: 77-81.
6. Mehta UM, Thirthalli J, Aneelraj D, Jadhav P, Gangadhar BN, et al. Mirror neuron dysfunction in schizophrenia and its functional implications: A systematic review. Schizophr Res. 2014; 160: 9-19.
7. Kern RS, Horan WP. Definition and Measurement of Neurocognition and Social Cognition. In: Roder V, Medalia A, editors. Neurocognition and Social Cognition in Schizophrenia Patients. Basel. Karger. 2010; 1-23.
8. Green MF, Kern RS, Braff DL, Mintz J. Neurocognitive deficits and functional outcome in schizophrenia: are we measuring the & quot right stuff & quot? Schizophr Bull. 2000; 26: 119-136.
9. Fett A-KJ, Viechtbauer W, Dominguez M-G, Penn DL, Van Os J, et al. The relationship between neurocognition and social cognition with functional outcomes in schizophrenia: A meta-analysis. Neurosci Biobehav Rev. 2011; 35: 573-588.
10. García-Fernández L, Lahera G, Dompablo M, Torío I R-JR. Rehabilitación cognitiva en la esquizofrena. In: Sántos JL, Sánchez-Morla EA AA, editors. Esquizofrenia: Tratamiento de los síntomas negativos y cognitivos. Barcelona. Glosa. 2016; 249-270.
11. Green MF, Bearden CE, Cannon TD. Social Cognition in Schizophrenia, Part 1: Performance across Phase of Illness. Schizophr Bull. 2012; 38: 854-864.
12. Pinkham AE. Social Cognition in Schizophrenia. J Clin Psychiatry. 2014; 75: 14-19.
13. Adolphs R. The neurobiology of social cognition. Curr Opin Neurobiol. 2001; 11: 231-239.
14. Addington J, Addington D. Facial affect recognition and information processing in schizophrenia and bipolar disorder. Schizophr Res. 1998; 32: 171-181.
15. Wölwer W, Combsb DR, Frommann N PD. Treatment Approaches with a Special Focus on Social Cognition: Overview and Empirical Results. In: Roder V, Medalia A, editors. Neurocognition and Social Cognition in Schizophrenia Patients. Basel. Karger. 2010; 61-78.
16. Pinkham AE, Penn DL, Green MF, Harvey PD. Social Cognition Psychometric Evaluation: Results of the Initial Psychometric Study. Schizophr Bull. 2016; 42: 494-504.
17. Pinkham AE, Penn DL, Green MF, Buck B, Healey K, et al. The Social Cognition Psychometric Evaluation Study: Results of the Expert Survey and RAND Panel. Schizophr Bull. 2014; 40: 813-823.
18. Buck BE, Pinkham AE, Harvey PD, Penn DL. Revisiting the validity of measures of social cognitive bias in schizophrenia: Additional results from the Social Cognition Psychometric Evaluation (SCOPE) study. Br J Clin Psychol. 2016; 55: 441-454.

Copyright © Lana F.This book chapter is open access distributed under the Creative Commons Attribution 4.0 International License, which allows users to download, copy and build upon published articles even for commercial purposes, as long as the author and publisher are properly credited.

19. Green MF, Penn DL, Bentall R. Social Cognition in Schizophrenia: An NIMH Workshop on Definitions, Assessment, and Research Opportunities. Schizophr Bull. 2008; 34: 1211-1220.

20. Baron-Cohen S, Wheelwright S, Hill J, Raste Y, Plumb I. The & quot; Reading the Mind in the Eyes" Test revised version: a study with normal adults, and adults with Asperger syndrome or high-functioning autism. J Child Psychol Psychiatry. 2001; 42: 241-251.

21. Frith CD. The Cognitive Neuropsychology of Schizophrenia. London. Psychology Press; 1995.

22. Garety PA, Freeman D. Cognitive approaches to delusions: a critical review of theories and evidence. Br J Clin Psychol. 1999; 38: 113-154.

23. Balzan RP, Galletly C. Metacognitive therapy (MCT+) in patients with psychosis not receiving antipsychotic medication: A case study. Front Psychol. 2015; 6: 967.

24. Moritz S, Vitzthum F, Veckenstedt R, Randjbar S WT. Metacognitive training in schizophrenia: from basic research to intervention. In: J.H. Stone and M. Blouin., editors. International Encyclopedia of Rehabilitation. Buffalo. NewYork, NY: Center for International Rehabilitation Research Information and Exchange (CIRRIE). 2010; 1-24.

25. Lysaker PH, Buck KD, Carcione A, Procacci M, Salvatore G, et al. Addressing metacognitive capacity for self reflection in the psychotherapy for schizophrenia: A conceptual model of the key tasks and processes. Psychol Psychother Theory, Res Pract. 2011; 84: 58-69.

26. Weijers J, Ten Kate C, Eurelings Bontekoe E. Mentalization-based treatment for psychotic disorder: protocol of a randomized controlled trial. BMC Psychiatry. 2016; 16: 191.

27. Penn DL, Combs D. Modification of affect perception deficits in schizophrenia. Schizophr Res. 2000; 46: 217-229.

28. Frommann N, Streit M, Wölwer W. Remediation of facial affect recognition impairments in patients with schizophrenia: a new training program. Psychiatry Res. 2003; 117: 281-284.

29. Hodel B, Kern RS, Brenner HD. Emotion Management Training (EMT) in persons with treatment-resistant schizophrenia: first results. Schizophr Res. 2004; 68:107-108.

30. Russell TA, Chu E, Phillips ML. A pilot study to investigate the effectiveness of emotion recognition remediation in schizophrenia using the micro-expression training tool. Br J Clin Psychol. 2006; 45: 579-583.

31. Vauth R, Joe A, Seitz M, Dreher-Rudolph M, Olbrich H SR. Differentiated short- and long-term effects of a “training of emotional intelligence” and of the “integrated psychologic therapy program” for schizophrenic patients? FortschriNeurol Psychiatr. 2001; 69: 518–525.

32. Roncone R, Mazza M, Frangou I. Rehabilitation of theory of mind deficit in schizophrenia: a pilot study of metacognitive strategies in group treatment. Neuropsychol Rehabil. 2004; 14: 421-435.

33. Penn D, Roberts DL, Munt ED, Silverstein E, Jones N SB. A pilot study of social cognition and interaction training (SCIT) for schizophrenia. Schizophr Res. 2005; 80: 357-359.

34. Choi K-H, Kwon J-H. Social Cognition Enhancement Training for Schizophrenia: A Preliminary Randomized Controlled Trial. Community Ment Health J. 2006; 42: 177-187.

35. Horan WP, Kern RS, Shokat-Fadai K, Sergi MJ, Wynn JK, et al. Social cognitive skills training in schizophrenia: an initial efficacy study of stabilized outpatients. Schizophr Res. 2009; 107: 47-54.

36. Gil Sanz D, Diego Lorenzo M, Bengochea Seco R. Efficacy of a social cognition training program for schizophrenic patients: a pilot study. Span J Psychol. 2009; 12: 184-191.

37. Mazza M, Lucci G, Pacitti F. Could schizophrenic subjects improve their social cognition abilities only with observation and imitation of social situations? Neuropsychol Rehabil. 2010; 20: 675-703.

38. Marsh P, Langdon R, McGuire J, Harris A, Polito V, et al. An open clinical trial assessing a novel training program for social cognitive impairment in schizophrenia. Australas Psychiatry. 2013; 21: 122-126.

39. Rocha NBF, Queirós C. Metacognitive and social cognition training (MSCT) in schizophrenia: A preliminary efficacy study. Schizophr Res. 2013; 150: 64-68.

40. Nahum M, Fisher M, Loewy R. A novel, online social cognitive training program for young adults with schizophrenia: A pilot study. Schizophr Res Cogn. 2014; 1: e11-e19.

41. Roder V, Studer K, Brenner H. Experiences with an integrated psychological therapy program for training communication and cognitive abilities in the rehabilitation of severely ill chronic schizophrenic patients. Schweiz Arch Neurol Psychiatr. 1987; 138: 31-44.

Copyright © Lana F.This book chapter is open access distributed under the Creative Commons Attribution 4.0 International License, which allows users to download, copy and build upon published articles even for commercial purposes, as long as the author and publisher are properly credited.

42. Mueller DR, Schmidt SJ, Roder V. One-Year Randomized Controlled Trial and Follow-Up of Integrated Neurocognitive Therapy for Schizophrenia Outpatients. Schizophr Bull. 2015; 41: 604-616.

43. Hogarty GE, Flesher S. Practice principles of cognitive enhancement therapy for schizophrenia. Schizophr Bull. 1999; 25: 693-708.

44. Bechi M, Bosia M, Spangaro M. Combined social cognitive and neurocognitive rehabilitation strategies in schizophrenia: neuropsychological and psychopathological influences on Theory of Mind improvement. Psychol Med. 2015; 45: 3147-3157.

45. Kurtz MM, Richardson CL. Social Cognitive Training for Schizophrenia: A Meta-Analytic Investigation of Controlled Research. Schizophr Bull. 2012; 38: 1092-1104.

46. Kurtz MM, Gagen E, Rocha NBF, Machado S, Penn DL. Comprehensive treatments for social cognitive deficits in schizophrenia: A critical review and effect-size analysis of controlled studies. Clin Psychol Rev. 2016; 43: 80-89.

47. Fonagy P, Luyten P. A developmental, mentalization-based approach to the understanding and treatment of borderline personality disorder. Dev Psychopathol. 2009; 21: 1355-1381.

48. Moritz S, Veckenstedt R, Bohn F. Complementary group Metacognitive Training (MCT) reduces delusional ideation in schizophrenia. Schizophr Res. 2013; 151: 61-69.

49. Schneider BC, Brüne M, Bohn F. Investigating the efficacy of an individualized metacognitive therapy program (MCT+) for psychosis: study protocol of a multi-center randomized controlled trial. BMC Psychiatry. 2016; 16: 51.

50. Schneider BC. A critical review of metacognitive training (MCT) for psychosis: Efficacy, proposed mechanisms of action and significance for functional outcomes. OA Behav Med. 2014; 18; 2: 1.

51. Brent BK, Fonagy P. A Mentalization-Based Treatment Approach to Disturbances of Social Understanding in Schizophrenia. In: Lysaker P, Dimaggio G BM, editors. Social Cognition and Metacognition in Schizophrenia. London. Elsevier. 2014; 245-259.

52. De Jong S, Van Donkersgoed RJM, Aleman A. Practical Implications of Metacognitively Oriented Psychotherapy in Psychosis. J Nerv Ment Dis. 2016; 204: 713-716.

53. Van Donkersgoed RJ, De Jong S, Van der Gaag M. A manual-based individual therapy to improve metacognition in schizophrenia: protocol of a multi-center RCT. BMC Psychiatry. 2014; 14: 27.

54. Lysaker PH, Carcione A, Dimaggio G. Metacognition amidst narratives of self and illness in schizophrenia: associations with neurocognition, symptoms, insight and quality of life. Acta Psychiatr Scand. 2005; 112: 64-71.

55. Semerari A, Carcione A, Dimaggio G. How to evaluate metacognitive functioning in psychotherapy? The metacognition assessment scale and its applications. Clin Psychol Psychother. 2003; 10: 238-261.

56. Salvatore G, Dimaggio G, Semerari A. A model of narrative development: Implications for understanding psychopathology and guiding therapy. Psychol Psychother Theory, Res Pract. 2004; 77: 231-254.

57. Bargenquast 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: 338-356.

58. De Jong S, Van Donkersgoed R, Pijnenborg GHM, Lysaker PH. Metacognitive Reflection and Insight Therapy (MERIT) With a Patient with Severe Symptoms of Disorganization. J Clin Psychol. 2016; 72: 164-174.

59. Van Donkersgoed RJM, De Jong S, Pijnenborg GHM. Metacognitive Reflection and Insight Therapy (MERIT) with a Patient with Persistent Negative Symptoms. J Contemp Psychother. 2016; 46: 245-253.

60. Lysaker PH, Kukla M, Belanger E. Individual Psychotherapy and Changes in Self-Experience in Schizophrenia: A Qualitative Comparison of Patients in Metacognitively Focused and Supportive Psychotherapy. Psychiatry. 2015; 78: 305-316.

61. Moritz S, Veckenstedt R, Andreou C. Sustained and “Sleeper” Effects of Group Metacognitive Training for Schizophrenia. JAMA Psychiatry. 2014; 71: 1103.

62. Moritz S, Werner R, Collani G von. The inferiority complex in paranoia readdressed: A study with the Implicit Association Test. Cogn Neuropsychiatry. 2006; 11: 402-415.

63. Moritz S, Woodward TS. Metacognitive Training for Psychosis (MCT), Version 6.0. Hamburg. VanHam Campus Press; 2015.

64. Briki M, Monnin J, Haffen E. Metacognitive training for schizophrenia: A multicentre randomised controlled trial. Schizophr Res. 2014; 157: 99-106.

65. Lam KCK, Ho CPS, Wa JC. Metacognitive training (MCT) for schizophrenia improves cognitive insight: A randomized controlled trial in a Chinese sample with schizophrenia spectrum disorders. Behav Res Ther. 2015; 64: 38-42.

66. 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: 952-962.

Copyright © Lana F.This book chapter is open access distributed under the Creative Commons Attribution 4.0 International License, which allows users to download, copy and build upon published articles even for commercial purposes, as long as the author and publisher are properly credited.

67. Jiang J, Zhang L, Zhu Z, Li W, Li C. Metacognitive training for schizophrenia: a systematic review. Shanghai Arch psychiatry. 2015; 27: 149-157.

68. Van Oosterhout B, Smit F, Krabbendam L, Castelein S, Staring ABP, et al. Metacognitive training for schizophrenia spectrum patients: a meta-analysis on outcome studies. Psychol Med. 2016; 46: 47-57.

69. Moritz S, Werner D, Menon M, Balzan RP, Woodward TS. Jumping to negative conclusions-a case of study-gathering bias? Psychol Med. 2016; 46: 59-61.

70. Ussorio D, Giusti L, Wittekind CE. Metacognitive training for young subjects (MCT young version) in the early stages of psychosis: Is the duration of untreated psychosis a limiting factor? Psychol Psychother Theory, Res Pract. 2016; 89: 50-65.

71. Morrison AP, Gumley AI, Ashcroft K. Metacognition and persecutory delusions: Tests of a metacognitive model in a clinical population and comparisons with non-patients. Br J Clin Psychol. 2011; 50: 223-233.

72. Wells A. Meta-Cognition and Worry: A Cognitive Model of Generalized Anxiety Disorder. Behav Cogn Psychother. 1995; 23: 301-320.

73. Morrison AP, Pyle M, Chapman N, French P, Parker SK, et al. Metacognitive therapy in people with a schizophrenia spectrum diagnosis and medication resistant symptoms: A feasibility study. J Behav Ther Exp Psychiatry. 2014; 45: 280-284.

74. Brent B. Mentalization-based psychodynamic psychotherapy for psychosis. J Clin Psychol. 2009; 65: 803-814.

75. Luyten P, Fonagy P. The neurobiology of mentalizing. Personal Disord Theory, Res Treat. 2015; 6: 366-379.

76. Bateman A, Fonagy P. Mentalization-Based Treatment for Borderline Personality Disorder. Oxford. Oxford University Press; 2006.

77. Bateman A FP. Mentalization-Based Treatment for Personality Disorders. A Practical Guide. Oxford. Oxford University Press; 2016.

78. Stoffers JM, Völlm BA, Rücker G, Timmer A, Huband N, et al. Psychological therapies for people with borderline personality disorder. In: Lieb K, ed. Cochrane Database of Systematic Reviews. Chichester, UK: John Wiley & Sons, Ltd; 2012: CD005652.

79. Lana F, Fernández-San Martín MI. To what extent are specific psychotherapies for borderline personality disorders efficacious? A systematic review of published randomised controlled trials. Actas Esp Psiquiatr. 2013; 41: 242-252.

80. Debbané M, Salaminios G, Luyten P. Attachment, Neurobiology, and Mentalizing along the Psychosis Continuum. Front Hum Neurosci. 2016; 10: 406.

81. Debbané M, Benmiloud J, Salaminios G. Mentalization-Based Treatment in Clinical High-Risk for Psychosis: A Rationale and Clinical Illustration. J Contemp Psychother. 2016; 46: 217-225.

82. Lana F, Sánchez-Gil C, Ferrer L. Effectiveness of an integrated treatment for severe personality disorders. A 36-month pragmatic follow-up. Rev Psiquiatr Salud Ment. 2015; 8: 3-10.

83. Lana F, Sanchez-Gil C, Perez V, Martí-Bonany J. A stepped care approach to psychotherapy in borderline personality disorder. Ann Clin psychiatry. 2016; 28: 140-141.

84. Lana F, Sanchez-Gil C, Adroher N. Comparison of treatment outcomes in severe personality disorder patients with or without substance use disorders: a 36-month prospective pragmatic follow-up study. Neuropsychiatr Dis Treat. 2016; 12: 1477-1488.

85. Lana F, Marcos S, Mollà L, Vilar A P V. Mentalization Based Group Psychotherapy for Psychosis: A Pilot Study to Assess Safety, Acceptance and Subjective Efficacy. Int J Psychol Psychoanal. 2015; 1: 2-6.

86. Lana F, Cruz MA, Marcos S, Romero M, Pérez V, et al. Brief Mentalization Based Group Psychotherapy for Schizophrenic Patients. A Pilot Study to Assess Subjective Efficacy. In: Fragilidad, Adversidad y Nuevas Terapias en las Psicosis. Madrid, 1-3 december: XXI Curso Anual de Esquizofrenia. AEN. The International Society for Psychological and Social Approaches to Psychosis-ISPS. 2016.

Copyright © Lana F.This book chapter is open access distributed under the Creative Commons Attribution 4.0 International License, which allows users to download, copy and build upon published articles even for commercial purposes, as long as the author and publisher are properly credited.