Letter to the Editors

A pilot study of social cognition and interaction training (SCIT) for schizophrenia

Dear Editors,

There has been growing interest in the role of social cognition in schizophrenia (Penn et al., 1997). Much of the enthusiasm is due to the functional significance of social cognition; social cognition contributes variance beyond neurocognition to social functioning in schizophrenia (Brune, 2005; Vauth et al., 2004). Such findings have led to the measurement of social cognition in the MATRICS neurocognitive battery (Nuechterlein et al., 2004).

The importance of social cognition has also led to interventions that seek to improve social cognitive functioning. These interventions can be conceptualized as either "targeted," that focus on a specific social cognitive ability (e.g., emotion perception; Silver et al., 2004), or "broad-based," that typically include cognitive remediation (e.g., Hogarty et al., 2004). Targeted interventions ignore the range of social cognitive deficits in schizophrenia, while broad-based interventions raise questions about whether cognitive remediation is a necessary first step. These issues led us to develop an intervention that focuses specifically on the key domains of social cognition that are impaired in schizophrenia: emotion perception, attributional style, and theory of mind (Green et al., in press). Below, we report pilot data on this new intervention, Social Cognition and Interaction Training (SCIT).

SCIT is a manual-based, group intervention designed for individuals with schizophrenia spectrum disorders, particularly individuals with paranoia. Three phases comprise SCIT: (1) Understanding emotions (6 sessions); (2) Social cognitive biases (7 sessions); and (3) Integration (5 sessions). In phase one, we introduce social cognition by asking participants to discuss times when they have gotten social situations "wrong" (e.g., thinking someone was mad at them when they were not). The remainder of phase one is devoted to defining basic emotions, including suspiciousness, and linking facial expressions to emotions. This latter task is conducted in part with the Emotion Trainer, a computer program which has been shown to improve emotion perception in schizophrenia (Silver et al., 2004).

Phase two is devoted to strategies for avoiding the pitfalls associated with "jumping to conclusions," a common problem for clients with paranoia. This concept is illustrated via videotaped interactions of actors who draw conclusions from events without having adequate information. We tell clients that our goal is to make them better social detectives, so as not to "convict" based on initial evidence. To achieve this goal, clients are taught to brainstorm multiple possible explanations, first for positive events, and then for negative and ambiguous events. We spend most of our time on events with ambiguous causes (e.g., you walk past a group of teenagers who start to laugh), as they tend to be most vexing. Then, we teach clients the differences between facts and guesses using photographs and videotapes, and we emphasize how guesses about social situations can impact feelings. Facts include objective situational variables (e.g. where people are located), statements made by people, facial expression or characteristics (e.g., color of hair), etc., while guesses are inferences about intangibles such as peoples' feelings, intentions, and motivations. This phase concludes with strategies to help clients make more conservative guesses and to better tolerate ambiguity. For example, we have clients play 20 Questions or make bets about hypothetical social situations, where uninformed guesses result in

losing "points." Putting these strategies in the context of games and betting is fun for clients and improves motivation.

The final phase, Integration, is devoted to clients' applying these social cognitive skills to their everyday lives. Clients practice using social cognitive strategies to interpret problematic situations that they have encountered and to plan appropriate steps to resolve them.

We evaluated the feasibility of SCIT in a pilot study conducted at Dorothea Dix State Hospital. Although SCIT was designed for 18 weekly, one-hour sessions, we modified the protocol to accommodate the schedule on the inpatient unit (i.e., five sessions per week for three months). One primary therapist (EM) led SCIT, along with a rotating co-therapist (DP, DR, ES, NJ). Treatment teams referred seven individuals with chronic psychotic illnesses (mean = 12.6 years of illness, SD = 5.3) who had difficulties interacting with peers. This group was predominantly male ($n = 5$), Caucasian ($n = 5$) and diagnosed with psychotic spectrum illnesses ($N = 6$), and averaged 43.6 years of age (SD = 10.3) and 14 years of education (SD = 3.2).

We administered a small battery prior to and following SCIT that comprised the following domains: symptoms (Brief Symptom Inventory; BSI, Derogatis, 1993), emotion perception (Face Emotion Identification Task; FEIT; Kerr and Neale, 1993), Theory of Mind (Hinting Task; Corcoran, 2001), and social cognitive biases (Ambiguous Intentions Hostility Questionnaire; AIHQ, Combs et al., submitted for publication). The AIHQ is a new measure of social cognitive biases comprised of scenarios with negative outcomes that vary in intentionality (e.g., you are supposed to meet a new friend at a restaurant but he never shows up). The participant's task is to indicate why the person likely acted the way s/he did and what s/he would do about it. An independent rater, blind to assessment status (i.e., pre- or post-test), rated participant responses on Likert-type scales for computing hostility and aggression indices; higher numbers reflect more hostile and aggressive responses.

Table 1 summarizes participants' pre and post scores, along with effect sizes (partial eta-squared). The findings indicate trend-level reductions in symptoms and hostile and aggressive biases, as well as a

Table 1
Baseline and post-test assessments for SCIT

	Pretest		Posttest		t	p	Effect size
	M	SD	M	SD			
BSI Total Score[a]	61.3	49.8	38.7	12.5	1.65	0.16	0.35
FEIT[b]	11.3	2.6	11.3	2.6	0	1	0
Hinting task[b]	12.1	4.8	15.3	3.4	3.82	0.009	0.70
AIHQ — Hostility bias[a]	9.4	4.2	6.7	1.9	2.44	0.059	0.54
AIHQ — Aggression bias[a]	8.5	3.9	6.9	1.9	1.58	0.175	0.33

a: $n = 6$; b: $n = 7$.

statistically significant improvement in Theory of Mind performance. These effect sizes were in the moderate range. There was no improvement in emotion perception. The correlation coefficients between changes in the BSI and changes in the AIHQ bias scores and Hinting Task were small ($< .26$), suggesting that improvement in attributions and theory of mind were not solely due to reduction in symptoms.

These findings suggest that SCIT is feasible and may yield clinical benefits, particularly in the areas of Theory of Mind and attributional style. Because of SCIT's lack of impact on emotion perception, we are spending more in-session time on the Emotion Trainer in a larger, open trial. Of course, these promising findings require replication in a randomized controlled design, and the impact of SCIT on social functioning still needs evaluation.

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