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Letter to the Editors

Stability and generalization of Social Cognition and Interaction Training (SCIT) for schizophrenia: Six-month follow-up results

Dear Editors,

Social Cognition and Interaction Training (SCIT; [Roberts et al., in press](#)) is a newly developed psychosocial group-based intervention designed to remediate the core social cognitive deficits found in schizophrenia ([Green et al., 2008](#); [Penn et al., 2007](#)). These deficits include emotion perception, theory of mind, and attributional style, and impairments in social cognition are believed to lead to poorer social functioning ([Penn et al., 2006](#)). A series of recent studies have demonstrated that SCIT is effective at improving social cognition and social functioning in both inpatient ([Combs et al., 2007](#); [Penn et al., 2005](#)) and outpatient samples ([Roberts and Penn, 2009](#)). In contrast, antipsychotic medication has demonstrated minimal efficacy in improving social cognition ([Harvey et al., 2006](#)). In our earlier research on SCIT with inpatients ([Combs et al., 2007](#)), we compared SCIT with a coping skills group and showed that at post-test, participants who completed SCIT showed robust improvements on measures of social cognition while the coping skills group did not improve on any outcomes.

In this current study, we examined the stability and maintenance of these improvements at a six-month follow-up for persons who completed SCIT (see [Combs et al., 2007](#) for study details). We focused on measures of emotion perception and social functioning as these areas showed the most robust changes in the original study. Also, we included two measures not used in the original study to assess the generalization of SCIT to other measures and constructs (e.g., social skill). For this study, we compared SCIT participants with a sample of non-psychiatric community matched controls to demonstrate the clinical significance of SCIT in improving social cognition and social functioning. Data from the coping skills group were not available for this study.

Participants included the 18 original SCIT participants (age $M = 41$; $n = 12$ male and 6 female; $n = 11$ White and 7 Black) and 18 age, gender, and ethnicity matched non-psychiatric community controls. Primary outcome measures included the Face Emotion Identification Test (FEIT) and the Social Functioning Scale social engagement and interpersonal contact subscales, all of which were used in the original study. Measures

of generalization included the Bell-Lysaker Emotion Recognition Test (BLERT) and the Social Skill Performance Assessment (SSPA, [Patterson et al., 2001](#)). The BLERT was used as our measure of generalization because it contains both audio and visual cues (i.e., more realistic task) and contains emotions not found on the FEIT (disgust and no emotion). The SSPA consisted of 2 role-plays which were independently scored by two reliably trained blinded researchers via audiotape ($ICC's = .70+$). For the SSPA, a mean overall rating of social skill was computed based on ratings of interest, fluency, clarity, focus, affect, conversation quality, and social appropriateness.

As presented in [Table 1](#), scores at six-month follow-up were significantly higher than scores at baseline on the FEIT and SFS social engagement and interpersonal contact subscales (all $F's > 4.0$, $p < .05$, $\eta_p^2 = .21-.41$). Despite the retention of gains from baseline treatment levels, scores decreased on the FEIT, $F(1, 17) = 9.2$, $p = .008$, $\eta_p^2 = .35$ and on the SFS social engagement, $F(1, 17) = 12.4$, $p = .003$, $\eta_p^2 = .42$, and interpersonal contact, $F(1, 17) = 5.2$, $p = .03$, $\eta_p^2 = .23$, subscales from post-treatment to follow-up. This decrease likely reflects regression to the mean, because performance on these outcome measures was uniformly high immediately following SCIT treatment ([Combs et al., 2007](#)). Nevertheless, decreases from post-test to follow-up were relatively small in absolute magnitude (i.e., differences ranged between 5 and 13% of post-test scores).

A somewhat different picture is obtained when the six-month follow-up scores are compared to non-psychiatric controls. SCIT participants did not statistically differ from the non-clinical controls on the FEIT, $F(1, 34) = 2.1$, ns, $\eta_p^2 = .05$, SFS social engagement, $F(1, 34) = 1.6$, ns, $\eta_p^2 = .04$, SFS interpersonal contact, $F(1, 34) = 2.8$, ns, $\eta_p^2 = .07$, or on the SSPA social skill ratings, $F(1, 33) = 2.4$, ns, $\eta_p^2 = .06$ ([Table 1](#)). There was a significant difference on the BLERT, $F(1, 34) = 4.3$, $p = .04$, $\eta_p^2 = .11$, but it should be noted that the SCIT group still showed higher BLERT scores than persons with schizophrenia in our previous studies (see [Combs et al., 2006](#)).

The results provide modest support for the stability and generalization of SCIT at a six-month follow-up. In general, scores improved from baseline, but declined from post-test. More importantly, SCIT participants demonstrated levels of social cognitive performance that was commensurate with non-psychiatric controls (except on the BLERT). Limitations of the current study include: 1) a small sample size, 2) a lack of data from the coping skills group, and 3) the repeated measurement of emotion perception and social functioning for SCIT participants with the non-clinical sample being tested one time (i.e., practice effects). These results provide

Table 1
Summary of follow-up results for SCIT and control participants.

Variable	SCIT participants N = 18					Non-psychiatric controls N = 18 M (SD)
	Baseline ^a	Post-test ^a	Six-month follow-up	Time 1–Time 3 difference	Time 2–Time 3 difference	
	M (SD)	M (SD)	M (SD)	(% change)	(% change)	
Selected outcome measures (range)	–	–	–	–	–	–
Face Emotion Identification (0–19)	11.5 (2.6)	15.9 (1.5)*	14.1 (1.8)	+ 2.6* (22.6%)	– 1.77* (11.3%)	15.0 (1.3)
Social Functioning Scale – Social Engagement Subscale (0–15)	10.7 (1.6)	13.7 (1.0)*	11.9 (1.7)	+ 1.2* (11.7%)	– 1.83* (13.7%)	13.0 (3.1)
Social Functioning Scale – Interpersonal Contact Subscale (0–9)	6.8 (.92)	8.6 (0.48)*	8.1 (.50)	+ 1.3* (19.1%)	– .50* (5.8%)	8.6 (.60)
Measures of generalization	–	–	–	–	–	–
BLERT (0–21)	–	–	15.2 (3.0)	–	–	17.0 (1.8)*
Social skill composite rating (1–5)	–	–	3.9 (.57)	–	–	4.3 (.44)

* $p < .05$.

^a Data from Combs et al. (2007).

additional evidence that SCIT may have the potential to be considered an evidence-based treatment for schizophrenia (following more rigorous randomized controlled trials with longer follow-up assessments).

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