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# Social cognition and interaction training for patients with stable schizophrenia in Chinese community settings

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#### ABSTRACT

Accumulated evidence suggests that Social Cognition and Interaction Training (SCIT) is associated with improved performance in social cognition and social skills in patients diagnosed with psychotic disorders. The current study examined the clinical utility of SCIT in patients with schizophrenia in Chinese community settings. Adults with stable schizophrenia were recruited from local community health institutions, and were randomly assigned to SCIT group (n=22) or a waiting-list control group (n=17). The SCIT group received the SCIT intervention plus treatment-as-usual, whereas the waiting-list group received only treatment-as-usual during the period of the study. All patients were administered the Chinese versions of the Personal and Social Performance Scale (PSP), Face Emotion Identification Task (FEIT), Eyes task, and Attributional Style Questionnaire (ASQ) at baseline of the SCIT group showed a significant improvement in the domains of emotion perception, theory of mind, attributional style, and social functioning compared to those in waiting-list group. Findings indicate that SCIT is a feasible and promising method for improving social cognition and social functioning among Chinese outpatients with stable schizophrenia.

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#### 1. Introduction

Poor social functioning is one of the hallmarks of schizophrenia (APA, 2000). Previous studies have documented that social functioning impairment in schizophrenia is associated with social cognition deficits (Couture et al., 2006; Fett et al., 2011). For example, theory of mind (ToM) has been found to be a better predictor than "non-social" cognition of social competence in schizophrenia (Brüne, 2006). In addition, social cognition seems to play a mediating role between neurocognition and social functioning (Sergi et al., 2006; Bae et al., 2010). The evidence of the association between social cognition and social functioning suggests that improving social cognition in schizophrenia may lead to improved social functioning.

To that end, a number of psychosocial interventions have been developed to improve social functioning in schizophrenia by way of improved social cognition. "Targeted" social cognitive interventions focus on a single ability, such as emotion perception or theory of mind (Penn and Combs, 2000; Frommann et al., 2003; Silver et al., 2004; Wolwer et al., 2005; Kayser et al., 2006; Russell et al., 2006; Mazza et al., 2010). However, the benefits of "targeted" interventions may be limited as social cognition is a multi-dimensional construct, including emotion processing, social perception and knowledge, theory of mind, and attributional bias (e.g., Green et al., 2008; Penn et al., 2008). To address these limitations, Social Cognition and Interaction Training (SCIT; Roberts et al., in press) was designed to improve emotion perception, attributional style, and theory of mind abilities for persons with psychotic symptoms. Evidence to date indicates that SCIT is associated with improved performance in social cognition and social skills in patients diagnosed with psychotic disorders (Penn et al., 2005, 2007; Combs et al., 2007, 2009; Roberts and Penn, 2009; Roberts et al., 2010; Lahera et al., 2013). One study also supports the stability and maintenance of these improvements over a 6-month follow-up period (Combs et al., 2009).

In Chinese samples with schizophrenia, we have documented the association between social cognition deficits and poor social functioning (Wang et al., 2006b; Zhu et al., 2007), and have also demonstrated the feasibility and efficacy of SCIT (Chan et al., 2010; Xu et al., 2011). For example, Xu et al. (2011) found that patients







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with schizophrenia who completed SCIT in a hospital setting showed significant social functioning improvement on the Personal and Social Performance Scale at post-test. It is not clear, however, whether these findings generalize to Chinese outpatient in community settings, or whether SCIT-related gains can be maintained during a follow-up period after treatment termination. The purpose of the present study, as an extension of previous work (Xu et al., 2011), was to extend the utility of SCIT to outpatients with schizophrenia in Chinese community settings. Given the possibility that some outcomes variables might be detected only at follow up and not at completion since it takes time to practice them in the real world, we examined SCIT-related improvements at six-month follow-up after treatment termination.

#### 2. Participants and methods

#### 2.1. Participants

Forty-five adults who met the diagnostic criteria for schizophrenia (DSM-IV, APA, 2000) were recruited from local community health institutions in the city of Hangzhou. Two participants with other clinical pathologies that could be associated with poor social functioning were excluded from the study. All patients had been receiving a stable dose of antipsychotic medication for at least 30 days before entry, and were clinically stable as defined by having no psychiatric hospitalizations in the past year and the same psychiatric medication for at least 18 months. All were able to understand the instructions of measures and the content of SCIT. Patients who had a current or past diagnosis of substance dependence or a severe medical or neurological condition were excluded.

Oral consent to participate was obtained from all patients. In addition, written consent from a parent or guardian was required for all patients by the local ethics board, the Ethics Committee of the Center of Disease Control and Prevention of Hangzhou.

#### 2.2. Measures

#### 2.2.1. Psychopathology and IQ

Psychopathology was assessed using the Positive and Negative Syndrome Scale (PANSS) (Kay et al., 1987; Si et al., 2004) by experienced clinicians. PANSS ratings had adequate inter-rater reliability in this study (interclass correlation coefficients for PANSS were: positive symptoms, 0.82; negative symptoms, 0.84; general symptoms, 0.79; and total scores, 0.88).

Because social functioning in schizophrenia has been shown to be correlated with neurocognition (e.g., Green et al., 2004; Fett et al., 2011) and full scale IQ (Dickinson and Coursey, 2002), the Wechsler Adult Intelligence Scale-Revised Chinese Version (WAIS-RC) (Gong, 1992) was administered as a measure of cognitive functioning (Neisser et al., 1996).

#### 2.2.2. Social functioning

Social functioning was evaluated using the Chinese version of the Personal and Social Performance Scale (PSP) (validated in a previous study by Tianmei et al., 2011) by psychiatrists who have received training on the use of the PSP. PSP total ratings had adequate inter-rater reliability in this study (interclass correlation coefficient was 0.81).

#### 2.2.3. Social cognition assessment

2.2.3.1. Emotion perception. Emotion perception was evaluated with the Face Emotion Identification Task (FEIT), validated in a previous study (Wang et al., 2006a). Participants viewed 30 facial emotion photographs (i.e., five facial photographs for each kind of basic emotion, and five for neutral), and were required to indicate which emotion was conveyed in each photograph. There was no time limit. Scores ranged from 0 to 30 with higher scores indicating better emotion perception.

2.2.3.2. Theory of mind. The Eyes Task is considered an advanced test of affective components of theory of mind (e.g., Baron-Cohen et al., 1997). In this study, we used a computer administered Chinese version of the Eyes Task (see Wang et al., 2008). For each of 50 trials, participants were first shown a fixed prompt (+) in the center of the computer screen to indicate the start of a new trial, and then a word describing a mental state appeared in the middle of the screen for 2 s, immediately followed by a 3-s display of a black-and-white photograph of an Asian person showing only the eye region of the face. Participants were asked to judge whether the person's expression in the photograph was consistent with the preceding word by giving a "yes" or "no" response to each photograph. As a control task, a gender recognition version of the task was then presented in which participants viewed

the same fifty photographs and had to judge the gender of the pictured individual. The maximum score for the Eyes Task in each condition is 50.

2.2.3.3. Attributional style. Attributional style was assessed with a Chinese version of Attributional Style Questionnaire (ASQ) (Peterson et al., 1982; Wang and Zhang, 2006). Participants were asked to judge the likely causes of six hypothetical positive and six hypothetical negative events and to rate each cause in terms of locus of control (internal vs. external), stability and globality. Participants rated these domains using 7-point Likert scales on which higher scores indicate greater attribution on each dimension and scores of 4 indicate a neutral response. For the current study, variables of interest were the mean score on each scale and the mean deviation from neutral on each scale (i.e., the absolute value of the difference between each item score and the neutral value of 4). We constructed this latter variable to account for group differences in "jumping to conclusions," a cognitive bias associated with schizophrenia (e.g., Menon et al., 2008) that is likely to lead to extreme responding. On the ASQ, a scale mean of 4 could result from various response profiles, including largely extreme responding (e.g., responses of 1 or 7) or more neutral responses (e.g., 4, 5, and 6). Because SCIT is hypothesized to moderate extreme social cognitive judgments associated with black-and-white thinking and jumping to conclusions (Roberts et al., in press), we included mean deviation from neutral as an outcome variable to capture group differences in extreme responding.

#### 2.3. Procedure

Forty-three participants who met enrollment criteria were randomly assigned in a 1:1 ratio to SCIT or a waiting-list group using a computer-generated list of random numbers. Patients drawing an even number were assigned to SCIT group (n=22), and those drawing an odd number were allocated in waiting-list group (n=21). During the study, four adult patients in the waiting-list group dropped out and did not complete the follow-up assessments. Two patients dropped out due to hospitalization for relapse and two in order to attend another intervention program. Thus, the data from 22 SCIT and 17 waiting-list participants were used in statistical analyses.

In order to ensure that SCIT was appropriate for Chinese culture and people, the SCIT manual was translated into Chinese by one of the authors (MY) who is a native speaker of Chinese and has been living in England for 3 years. She majored in

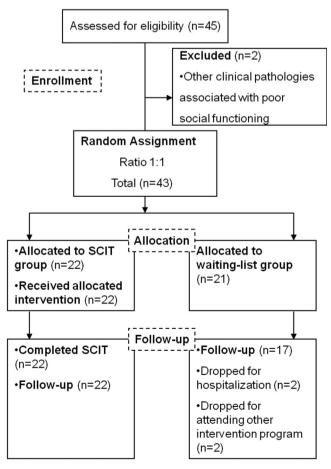


Fig. 1. CONSORT Flow Chart.

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