



Impact of family involvement on social cognition training in clinically stable outpatients with schizophrenia – A randomized pilot study

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ABSTRACT

Recovery of social functioning is a largely unattained goal in schizophrenia rehabilitation. In the recent past, new neurocognitive and social cognitive training approaches have been introduced to improve functioning in various domains of patients' social life. These programs have neglected, to some degree, the social environment in which the training takes place. Accordingly, the present study sought to examine if family-assisted social cognitive training could improve quality of life, social functioning and social cognition in schizophrenia patients as compared to a social stimulation approach. In a randomized, controlled, parallel group trial design with two groups, one receiving family-assisted social cognitive training once a week (F-SCIT) and the other, social stimulation once every three weeks (SS), both for 14-weeks period, patients were assessed at baseline, before randomization and 16 weeks after randomization. Participants were recruited from Celal Bayar University Psychosis Unit and were in a clinically stable condition. Patients who received F-SCIT significantly improved in quality of life, social functioning and social cognition, whereas the SS group worsened in nearly all outcome variables. Family-assisted SCIT is effective in improving quality of life, social functioning and social cognition.

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1. Introduction

Schizophrenia is a chronic, recurrent, severe mental disorder. Even though [Bleuler \(1911\)](#) featured the core symptoms of this group of disorders as potentially remitting, for many patients this goal has remained unattained to the present day. Even more so, for a substantial number of patients, recovery, which includes social problem solving abilities and adequate functioning in various domains of everyday life, seems at present out of reach. In addition, evidence is accumulating that psychopharmacological treatment alone is insufficient to accomplish recovery ([Davidson et al., 2008](#); [Lieberman et al., 2008](#); [Ng et al., 2008](#)).

Functional outcome is not merely a matter of “classic” symptom reduction, but more tightly linked to the amelioration of neurocognitive and social cognitive impairment ([Vauth et al., 2004](#); [Bora et al., 2006](#); [Brekke et al., 2007](#); [Brüne et al., 2007](#); [Sergi et al., 2007](#); [Addington and Addington, 2008](#)). As regards neurocognition, several studies have shown that functional outcome measures in schizophrenia can be predicted by performance on a variety of measures of cognitive abilities, including working memory, visual and verbal

memory, cognitive processing speed, and executive functioning ([Sergi et al., 2007](#); [Addington and Addington, 2008](#)). Likewise, social cognition, defined as “mental operations underlying social interactions, which include the human ability to perceive the intentions and dispositions of others” ([Brothers, 1990, p. 28](#)), has been shown to explain a considerable amount of variance in explaining in functional outcome ([Brüne et al., 2007](#); reviewed in [Fett et al., 2011](#)), largely independent of neurocognition ([Brekke et al., 2007](#); [Couture et al., 2011](#)).

Accumulating evidence suggests that social cognitive impairment only partially responds to antipsychotic medication ([Herbener et al., 2005](#); [Mizrahi et al., 2007](#)). For example, according to the CATIE study, antipsychotic treatment had no significant effect on patients' ability to recognize emotions in facial expressions, with little difference being found between “classic” antipsychotics and second-generation substances ([Penn et al., 2009](#)). Accordingly, recent efforts have focused on non-pharmacological remediation of social cognitive deficits in order to improve social functioning in schizophrenia patients. In fact, the idea of integrating non-pharmacological remediation in schizophrenia patients was first implemented by [Brenner et al. \(1992\)](#), who used Integrated Psychological Therapy (IPT), a structured group-based cognitive-behavioral treatment program for schizophrenia in which neurocognitive and social cognitive remediation are integrated with psychosocial rehabilitation. More recently, [Roberts and Penn \(2009\)](#) developed a structured social cognitive intervention program that more explicitly focuses on the social dimension of cognitive

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remediation, called Social Cognition and Interaction Training (SCIT). Horan et al. (2009) has recently introduced a modified social cognition training by combining elements of SCIT with skill-building strategies. That is, complex social cognitive processes were split into basic components, which included a more structured emotion perception phase using computerized training (Horan et al., 2009). Studies using the SCIT have revealed that the core social cognitive domains such as emotion perception, attributional style, and theory of mind improve in both outpatients and inpatients, with some differences in efficacy regarding attributional style (Horan et al., 2009; Roberts and Penn, 2009). SCIT also has the potential to improve social skills in patients with schizophrenia (Roberts and Penn, 2009).

Although these studies yield encouraging results, it is not clear as to what extent schizophrenia patients can transfer newly acquired social cognitive skills to “real-life” situations (Combs et al., 2007). Even though SCIT includes an “integration” phase, where learned skills are applied to interpersonal problems in everyday life, alternative approaches are required to facilitate the transfer of newly learned social skills to real-life. For example, with regard to social learning theory, Bandura (1969, 1986) emphasized that the “micro” social environment is essential to facilitate enduring behavioral change.

An individual's micro social environment (MSE) includes family members and close friends, who connect the person to his or her “macro” social environment, i.e. status in the community (including his or her social and economic status), education, employment, romantic partnership and so forth (Monahan and Vaux, 1980; van Wormer, 2007a; van Wormer et al., 2007b). Thus, the MSE assists individuals to improve coping skills, emotion regulation and connection to the more distant social environment. In support of the contention that the MSE of schizophrenia patients plays a critical role, several studies have shown that negative attitudes of families towards their relatives with schizophrenia correlate with patients' negative emotional states, poor emotion regulation, inadequate problem solving skills and severity of illness. Conversely, treatment strategies that actively involve family members or close others have proved effective in reducing relapse rates (Kuipers, 1992; Pharoah et al., 2010). In a similar vein, bolstering the MSE through social behavioral learning techniques has proved effective in reducing aggressive behavior in children with autism where social cognition is profoundly impaired (reviewed in Bushwick, 2001; Davison, 1964), and of other chronically ill inpatients with mental disorders (Glynn and Mueser, 1986).

Given the importance of social cognition for functional outcome in schizophrenia patients, the impact of social cognitive training and social learning techniques on social skill development, and the potentially beneficial effect of the MSE in social skill training, we sought to examine the potential role of a family member or a close friend involved in an established social cognitive training approach. Accordingly, we elaborated on the SCIT by introducing the active assistance of a close family member or a friend in the training protocol, henceforth referred to as “Family-assisted Social Cognition and Interaction Training” (F-SCIT). In the F-SCIT, family members or selected friends were actively trained in social cognition and social learning techniques, and introduced as “social cognition partners”. As a control condition, we chose a social stimulation program, because we believed that it would reduce social withdrawal without having the more specific aspects of social cognitive training. We hypothesized that F-SCIT would be more effective in improving quality of life, social functioning and social cognition than non-specific social stimulation.

2. Methods

2.1. Design

Participants were randomly allocated to one of two conditions. Both F-SCIT (once a week) and social stimulation (SS; once every 3 weeks) took place over a 14-week period. During the recruitment phase, a simple randomization (computerized random numbers) with an initial 1:1 assignment ratio was applied. After recruitment of 30

participants, we discovered a greater variance in outcome measures in the social stimulation group, such that the number of participants was increased by switching to a 1:2 assignment ratio to decrease noise and improve data quality (Piantadosi, 2005). Patients who attended fewer than two sessions of each phase of the F-SCIT and less than two sessions of the SS dropped out. All participants were regularly seen in the outpatient department by one of the authors (AED). Data were collected at baseline before randomization, and 16 weeks after randomization. All participants were followed up by the same psychiatrist (AED) at the psychosis unit of Celal Bayar University Psychiatry Department. The performance-based assessments were carried out by one psychiatry resident; psychopathology and Quality of Life (QoL) scales were rated by two consultant psychiatrists independent from one another. Interviewers and raters were not involved in treatment administration, recruitment or assignment procedures. We chose QoL and social functioning as primary outcome parameters, and social cognition domains and symptom severity as secondary outcome parameters. A per-protocol approach was preferred over intention-to-treat for preliminary and primary analyses. Ethical approval for the study was obtained from the Celal Bayar University Ethics Committee. The trial data were collected between September 2009 and June 2010. Allocation and follow-ups are summarized in the CONSORT flow chart diagram (Fig. 1).

2.2. Participants

Fifty-two participants were recruited from the Celal Bayar University Psychosis Unit. Three participants did not meet inclusion criteria and were excluded from the study. Forty-nine patients were randomly assigned to either F-SCIT or SS. Three patients from the F-SCIT group and one patient from the SS group were excluded from the analysis according to the predefined study protocol treatment criteria. Accordingly, 19 patients remained in the F-SCIT group and 26 in the SS group. The F-SCIT was carried out in two groups by a psychiatrist who was trained in cognitive remediation and cognitive behavioral therapy (CT). The SS intervention was also carried out in two groups by three psychiatrists, one of whom was trained in psychoanalytical group therapy; the other two were psychiatry residents. All remaining patients completed the same pre- and post-treatment tests. Both training approaches were designed to be accomplished in the same time line (14 weeks); post-test scores were obtained within 2 weeks after completion of interventions. To improve accuracy, a psychiatry resident and a clinical psychologist jointly evaluated performance-based tests, in a session during which they discussed the ratings of the written responses using a scoring sheet and agreed upon a score. In addition, a consultant psychiatrist evaluated the semi-structured interviews examining QoL and psychopathology. Interclass correlation coefficient's (ICC's) were not taken into consideration, because only one rater judged QoL and severity of psychopathology.

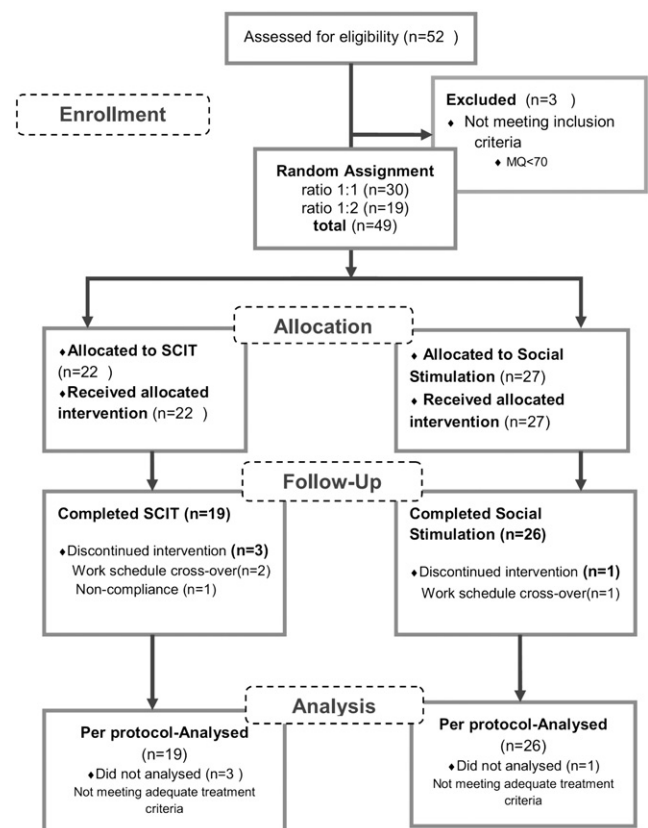


Fig. 1. CONSORT Flow Chart.

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