Skills Training to Enhance Vocational Outcomes in Veterans with Serious Mental Illness
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Background and Rationale: Schizophrenia and bipolar disorder are profoundly disabling illnesses. Only 15% and 24% of individuals with these conditions are competitively employed, as compared to nearly 70% of healthy individuals[1]. Vocational rehabilitation programs such as supported employment have proliferated in recent years to facilitate work placement of individuals with serious mental illness. These programs have successfully placed individuals, typically doubling employment rates[2]. However, maintenance of employment is dependent upon being able to successfully integrate into one's work setting. This can present a significant challenge to individuals with serious mental illness, as they typically exhibit impairment in their ability to accurately perceive and understand social exchanges[1, 3, 4]. Thus, in addition to work skills, these individuals are also likely to need assistance developing skills to manage the social demands of work. To enhance vocational outcomes, integration of psychological interventions with vocational programs has been recommended[5].

Social cognition is the ability to accurately perceive and understand the social world and encompasses emotion recognition, interpretation of social exchanges (Theory of Mind), and inference of motivations (Attribution Bias). Social cognitive deficits are associated with functional disability and have been found to be unique predictors of community[6-8] and work functioning[9, 10]. The impact of social cognition on functional outcomes is direct and indirect. Bell and colleagues found that the relationship between social cognition and work performance was mediated by social discomfort, suggesting that difficulty understanding social interactions led to discomfort around co-workers, and ultimately, affected job performance[9]. Similarly, Brekke et al. noted that social cognition contributed to poor role functioning both directly and through social competence and perceived social support[7]. Individuals with poor social cognitive ability functioned less effectively because they were less able to respond skillfully in social interactions and to perceive and access support from others. Given its strength as a predictor and proximity to functioning, social cognition has become an intervention target[11].

Results of recent studies suggest that social cognitive abilities are modifiable in both schizophrenia[12] and bipolar disorder[13]. Presently, the most established intervention is Social Cognitive Intervention Training (SCIT), a 12-week group intervention in which participants learn strategies to enhance emotion recognition and to assess the accuracy of their interpretation of social interactions[14]. SCIT's ultimate goal is for training to transfer beyond the social cognitive training targets to more distal outcomes such as enhanced role functioning. The first full scale clinical trial of SCIT's efficacy found that the impact of training generalized beyond social cognitive performance and resulted in increased skillfulness in social interactions[15].

To enhance transfer of training gains to functional outcomes, two pilot studies have paired participants with a social mentor to facilitate completion of homework and to ensure that skills are practiced outside of treatment (supported SCIT). Both studies reported improvements not only in social cognition but also in social relatedness[16] and community functioning[17]. The proposed study will extend this work by being the first to examine the impact of supported SCIT on work role functioning. When other types of skills training have been paired with work, a synergistic effect has been noted, with greater[18, 19] and more sustained[20] treatment gains observed, presumably because work offered opportunities to practice skills.

Specific Aim 1: This study will assess the feasibility of providing supported SCIT to individuals with serious mental illness who are engaged in work activity or school (i.e., competitive employment, hospital based compensated work therapy placement, volunteer work, school). One 2-hour group-based skills training sessions will be offered weekly. The group training will be supplemented with individual sessions with a group co-facilitator to complete homework tailored to the work setting.

Hypothesis 1. Supported SCIT will be completed by 75% of enrolled veterans, a rate comparable to non-supported SCIT offered to non-veterans[21]. Completion will be defined as attendance at 80% or more of group and individual sessions.

Specific Aim 2: This study will assess the impact of supported SCIT on social cognitive intervention targets as well as functional outcomes.

Hypothesis 2. Recipients of supported SCIT are expected to demonstrate performance gains on measures of social cognition, perceived social support, social competence, social comfort, and work performance post-intervention.

Specific Aim 3: This study will assess durability of intervention-induced change.

Hypothesis 3: Recipients of supported SCIT are expected to sustain gains in social cognitive and functional domains during a 3-month follow-up period.

Methods:

Study Design. An open-trial pilot study will be conducted in which participants attend 12 weeks of supported SCIT.

Participant Inclusion/Exclusion Criteria. Participants will be individuals, ages 18-70, with a DSM-5 diagnosis of schizophrenia, schizoaffective disorder, or bipolar disorder who are engaged in work activity. In addition, participants must be clinically stable, defined as no psychiatric hospitalizations and no changes in antipsychotic or mood stabilizing medication in the 4 weeks prior to study enrollment, and participants must be able to participate appropriately in a group-based activity, as judged by no recent history of disruptive behavior in groups and no history of unprovoked aggression toward others. Participants will be excluded if they have met criteria for substance abuse in the last month or substance dependence in the last 6 months, if they are not fluent enough in English to understand testing procedures, if they have premorbid IQ less than 70, or if they do not have the capacity to give informed consent.

Participant Recruitment. Patients will be recruited from the Minneapolis VAHCS. A study investigator or a Master's level study staff person will meet with mental health staff to provide information about the study and to request that information be provided to appropriate patients. We will also post advertisements describing the study at the VAHCS. In addition, with a waiver of consent for screening and a waiver of HIPAA authorization for screening purposes, the investigators will request a list of patients treated at the Minneapolis VAHCS who have a chart diagnosis and are within the age of participants eligible for this study. These individuals will be sent an IRB-approved letter that describes the study and that offers them the opportunity to indicate whether they would like to hear more about the study. Participants who do not respond to research staff within two weeks of receipt of the letter will receive a follow up phone call from research staff asking them if they would like additional information about the study. When a prospective participant expresses interest in the study, research staff will further describe the study to him/her. If the participant continues to be interested, a brief eligibility screening will take place. If the participant appears to be appropriate, the participant will be asked to provide consent for a diagnostic interview. If the potential participant appears appropriate for the study, he or she will be given the opportunity to complete the protocol and provided with a consent form. The consent form will contain a detailed description of all study procedures, as well as possible risks and benefits. Dr. Nienow, another study investigator, or a Master's level study staff member will review the content of the form with the participant and respond to any questions or concerns. To ensure comprehension of the information provided in the informed consent forms, participants will be asked to answer questions about the information on the consent form. Indicators that a participant cannot currently comprehend meaningfully the content of the consent form will include: 1) the potential participant has severe formal thought disorder that does not allow him or her to ask understandable questions or to paraphrase the basic points in the consent form; 2) the potential

participant is unable to maintain attention to the description of the consent form long enough to perceive the individual basic points in the consent form; 3) the potential participant cannot ask questions or respond sufficiently to indicate agreement due to catatonia; or 4) the potential participant expresses delusions related to the research protocol that significantly distort his or her basic understanding of the research. In contrast, some indicators that the potential participant can provide meaningful consent will include: 1) ability to pay attention well enough to read the form or have it read and described to him/her; 2) ability to paraphrase the basic points in the consent form; and 3) ability to ask reasonable questions about the research and associated treatment conditions.

Study Intervention. The intervention will consist of one 2-hour, small group training session and 30-minutes of individualized supported practice of skills with a treatment facilitator weekly. Dr. Nienow and bachelor and master's level assistants will offer the intervention. The Social Cognitive Intervention Training (SCIT) will be described as a relationship skills class. The class will consist of a combination of lecture, demonstrations, and role-play activities. Participants will learn skills to facilitate emotion recognition. They will also learn strategies to assist with perspective taking and assessing the accuracy of attributions about social situations.

Assessment. See Table 1 for all assessment measures. Participant diagnosis will be established with a SCID diagnostic interview. In addition, to establish eligibility, structured interviews will be conducted to obtain participant demographics, medical, and psychiatric history. In addition, the Wechsler Test of Adult Reading will be administered to obtain an estimate of pre-morbid IQ. Baseline, post-intervention (3-month), and follow up (6-month) assessments will measure social cognitive training targets, functional outcomes, and potentially confounding variables such as symptom severity with instruments previously used with this patient population. Social cognitive domains will be assessed with the Bell-Lysaker Emotion Recognition Task, the Ambiguous Intentions and Hostility Scale, the Facial Emotion Identification Test, and The Awareness of Social Inference Task. Social competence, community functioning, perceived social support at work, and social comfort at work, will be assessed with the Social Skills Performance Assessment, the Mentoring and Communication Support Scale, the First Episode Social Functioning Scale, the Vocational Efficacy in Trauma Survivors Scale, and the Mentoring and Communication Support Scale. Potential confounds, symptom severity and outside treatment hours, will be assessed with the Brief Psychiatric Rating Scale and the treatment update interview.

Statistical Analysis: Descriptive statistics, including means, standard deviations, and measures of frequency will be used to describe the sample as well as uptake and engagement in treatment. Repeated measure ANOVAs and paired sample t-tests will be used to test for the effects of Time on social cognitive and functional outcome variables. Magnitude of within group change with treatment will be measured with Cohen's d.

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