



Social competence versus negative symptoms as predictors of real world social functioning in schizophrenia [☆]



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ABSTRACT

Deficits in real world social functioning are common in people with schizophrenia and the treatment of social skills deficits has been a long-time treatment strategy. However, negative (i.e., deficit) symptoms also appear to contribute to real-world social dysfunction. In this study, we combined data from three separate studies of people with schizophrenia (total $n = 561$) who were assessed with identical methods. We examined the prediction of real-world social functioning, rated by high contact clinicians, and compared the influence of negative symptoms and social skills measured with performance-based methods on these outcomes. Negative symptom severity accounted for 20% of the variance in real-world social functioning, with social skills adding an incremental 2%. This 2% variance contribution was the same when social skills were forced into a regression model prior to negative symptom severity. When we examined individual negative symptoms, prediction of real-world social functioning increased to 28%, with active and passive social avoidance entering the equation. Adding depression into the predictor model improved the prediction of real-world social functioning significantly, but minimally (4% variance). Social skills contribute to real-world social outcomes, but treating negative symptoms appears to be a possible path for improving real-world social functioning in this population.

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1. Introduction

Severe deficits in real-world social functioning are a central feature of schizophrenia. Treatment attempts have focused on social skills deficits, with social skills training being a long-time intervention effort. Social skills training has aimed at increasing the capability to interact with others in a variety of group and individual formats. However, the influences of other aspects of schizophrenia, particularly negative symptoms, on real-world social functioning is likely important. For instance, the “deficit syndrome” is associated with substantial social deficits. This concept is interpreted as being a separate condition within the schizophrenia spectrum (Carpenter et al., 1988) that is not associated with factors such as medication side effects, depression and psychotic confusion (Carpenter et al., 1999), but is marked by primary negative symptoms. These symptoms (anhedonia, amotivation, avolition, alogia,

and blunted affect) present as a condition involving reduced motivation to engage in pleasurable activities, such as social and recreational activities, as well as failing to be motivated by traditional incentives. Real-world social functioning has been theorized to be the functional domain most affected by deficit syndrome symptoms, interfering with acquisition of social skills (Kopelowicz et al., 1997) and application of these skills as required for real-world social functioning (Kurtz and Mueser, 2008). Research by Faerden et al. (2009) established that avolition is critical in predicting functional outcomes, and this notion is further substantiated with work by several other research studies (Kiang et al., 2003; Foussias et al., 2011; Konstantakopoulos et al., 2011).

Similarly, anhedonia, the decreased capacity to experience pleasurable emotions, is another fundamental characteristic feature of schizophrenia that is among the negative symptoms of the disorder (Blanchard et al., 1998; Horan et al., 2006). Anhedonia was placed centrally in etiological models of schizophrenia by theorists such as Meehl and Rado (Blanchard et al., 1998; Horan et al., 2006). In their early models, they posited that anhedonia was not only a genetic marker for schizophrenia, but that it was a critical underlying factor of the incapacitating social isolation and emotional impairments related with this disorder (Horan et al., 2006). Both avolition and anhedonia tend to be persistent,

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resistant to current treatments, and contribute significantly to impairments in real world outcomes (Kirkpatrick et al., 2006; Bowie et al., 2008; Horan et al., 2008; Foussias and Remington, 2010; Fervaha et al., 2013). Anhedonia has been hypothesized to underlie reduced motivation to engage in social activities.

It is a common finding that negative symptoms are related to real-world social functioning. A number of studies have examined negative symptoms, social competence, amotivation, and cognitive deficits in relationship to global outcomes and real-world functioning (Gard et al., 2009; Konstantakopoulos et al., 2011; Rabinowitz et al., 2012). Research conducted by Voges and Addington (2005) and Nakagami et al. (2008) investigated multiple predictors of real-world functioning (negative symptoms, negative self statements), but did not include measures of social skills.

In a previous study with a subset of this sample we (Leifker et al., 2009) found that social skills and the ability to perform critical everyday living skills (i.e., functional capacity), were related to different aspects of real-world functional outcomes. In that study, we found that performance-based indices of social skills and negative symptoms were correlated with real-world social functioning rated by high-contact clinicians, but were minimally associated with the severity of impairments in everyday activities. Functional capacity, measured with the University of California San Diego Performance-based Skills Assessment Battery (UPSA; Patterson et al., 2001a) was associated with the severity of impairments in everyday activities, as rated by these same clinicians, but essentially unassociated with real-world social functioning.

In this paper, we present analyses of a unique set of data: three separately collected datasets with extremely similar methodological strategies that allowed for the evaluation of the relationship between real-world social functioning, performance-based assessments of social skills, and clinical ratings of negative symptoms generated by a rater other than the clinician who rated real-world social functioning. While the same real-world social functioning measure, clinical ratings, and social skills measures were used, these studies were conducted in four separate geographical areas, have no overlap of patients, testers, or clinicians, and reflect a wide range of demographic and ethnic variations in the participants. Though some results regarding correlational aspects between symptoms, social competence, and everyday social outcomes have been published from the three studies (Bowie et al., 2006, 2008; Leifker et al., 2009; Sabbag et al., 2011; Durand et al., *in press*), the pooled sample size increases our ability to detect correlational relationships between these predictor variables and has not been used previously to address the particular questions of interest in this study.

In this study, we quantified the relationships between performance-based assessments of social skills (Social Skills Performance Assessment [SSPA]; Patterson et al., 2001b), clinician ratings of real-world social functioning (Specific Levels of Functioning [SLOF] Scale; Schneider, and Struening, 1983), and clinical ratings of negative symptoms (Positive and Negative Syndrome Scale [PANSS]; Kay et al., 1987). In line with our previous findings, we expected to find that negative symptoms would exert a substantial impact on real-world social functioning and that this influence would be larger than that of social skills. Given the size of our sample, we were able to perform additional analyses regarding the level of real-world social dysfunction in individuals whose social skills were unimpaired. Finally, we wanted to determine whether depression, measured with patient self-reports, augmented the influence of either social competence deficits or negative symptoms on real-world social functioning.

2. Methods

2.1. Subjects

The data are part of three study cohorts collected in four different geographical areas, aimed at identifying the course and correlates of

change in functional status as well as the optimal method for rating real-world social functioning among schizophrenia outpatients. The methods used to collect these samples were described in three separate papers (Bowie et al., 2008; Harvey et al., 2011; Durand et al., *in press*).

The study participants were outpatients (n = 561) with schizophrenia or schizoaffective disorder receiving treatment at one of several different service delivery systems in Atlanta, Miami, San Diego and New York City. Atlanta patients were either recruited at a private psychiatric rehabilitation program (Skyland Trail Atlanta) or from the outpatient population at the Atlanta VA Medical Center. San Diego patients were recruited from the UCSD Outpatient Psychiatric Services clinic, a large public mental health clinic and other local community clinics, or by self-referral. Miami patients were recruited from the outpatient services at the University of Miami Miller School of Medicine. The New York City sample recruitment was conducted at the Bronx VA, an outpatient clinic at the New York State Psychiatric Hospital, and the outpatient departments at Mount Sinai School of Medicine. All research participants, including clinical informants, provided signed informed consent according to standards approved by the responsible local Institutional Review Boards.

Patients from Atlanta, San Diego, and Miami were participants in one of two phases of the Validation of Everyday Real World Outcomes Study (VALERO), parts 1 or 2. UCSD and Atlanta patients participated in VALERO 1, and UCSD, Atlanta, and Miami patients participated in VALERO 2, which was started 6 months after the conclusion of data analysis of VALERO 1. These data were collected between July 2007 and July 2012. The Mount Sinai Sample was collected between March 2003 and June of 2008.

All subjects completed a structured diagnostic interview, administered by a trained interviewer, for diagnostic verification. The Structured Clinical Interview for the DSM (SCID; First et al., 1995) was used at the Atlanta sites, the Mini International Neuropsychiatric Interview, 6th Edition (MINI; Sheehan et al., 1998) in San Diego and Miami, and the Comprehensive Assessment of Symptoms and History (CASH; Andreasen et al., 1992) in New York. All diagnoses were verified in local consensus procedures. Screening also included global cognitive function and premorbid functioning measured with the Mini-Mental State Examination (MMSE; Folstein et al., 1975) and the Wide Range Achievement Test, 3rd Edition (WRAT-III; Jastak and Wilkinson, 1994) Recognition Reading subtest. Patients were excluded for a history of traumatic brain injury, brain disease such as seizure disorder or neurodegenerative condition, an MMSE score below 18, or the presence of another DSM-IV diagnosis that would exclude the diagnosis of schizophrenia. MMSE scores were not recorded for use in analyses, because of a concern about ceiling effects. To capture a comprehensive array of participants reflective of real-world realities, comorbid substance use disorders were not an exclusion criterion. Rather, patients who appeared intoxicated were rescheduled. No inpatients were recruited, but patients who resided in a variety of residential facilities including unsupported, supported, or supervised facilities were eligible. Informants were not screened for psychopathology or substance abuse.

2.2. Assessment strategy

Pursuant to successful screening, the test battery was completed in a fixed order, namely, functional skills assessment followed by a cognitive test battery (reported elsewhere), and a symptom interview. All raters received extensive training in performing all of the assessments, including the PANSS, and every three months their performance was re-evaluated. Real-world functioning was rated with the same rating scale at each site and these clinician raters received no training. In the Mt. Sinai study, ratings were generated by a high-contact clinician, that is, a case manager, a residential facility manager, or a psychotherapist who stated that they knew patient “very well”. In VALERO 1, high contact clinicians and friends or relatives of the patients provided information to a clinical rater who generated ratings of everyday functioning.

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