



Functional outcomes, functional capacity, and cognitive impairment in schizotypal personality disorder

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ABSTRACT

Background: Individuals with schizotypal personality disorder (SPD) exhibit impaired cognitive functioning in a pattern similar to that found in schizophrenia; less clear is the extent to which these individuals also share schizophrenia patients' impairments in functional capacity and real-world functioning.

Method: We evaluated 46 SPD patients, as well as 38 individuals with avoidant personality disorder (AvPD) and 55 healthy controls (HC) on: cognitive functioning, real-world functioning (employment and residential status), and functional capacity (indexed by the UPSA, a performance-based skills assessment).

Results: We found that individuals with SPD exhibited worse performance on both the cognitive battery and the UPSA than the other groups; they were also less likely to be employed and to be living independently. Additionally, cognitive and UPSA performance in the SPD group was intercorrelated to a degree comparable to what has been found in schizophrenia, and this relationship was not present in the AvPD group. Finally, real-world functioning was related to UPSA performance for both patient groups.

Conclusions: SPD patients exhibit impaired real-world functioning suggesting that these deficits extend across the schizophrenia spectrum. In addition, there is supportive evidence for the validity and importance of performance-based measures such as the UPSA to predict everyday outcomes across the schizophrenia spectrum.

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1. Introduction

Schizophrenia patients exhibit impairments in a wide range of domains of everyday functioning, including social and occupational functioning, residential maintenance, medication management, and basic self-care (Wiersma et al., 2000). These impairments begin before illness onset, occur even following successful treatment of clinical symptoms, and persist after psychotic symptoms remit (Harvey, 2012), suggesting that psychosis does not fully account for functional impairments in schizophrenia. While functional impairment has been demonstrated to be strongly associated with cognitive impairment in chronic schizophrenia, it is much less clear whether functional impairment accompanies the more modest cognitive impairment seen in schizophrenia spectrum conditions and whether functional disability is worsened by medication status, history of psychosis, and broad and severe cognitive deficits of schizophrenia. Functional outcomes of schizophrenia patients are closely linked to impairments in cognitive

performance (Green, 1996; Green et al., 2011), although other features of the illness clearly contribute (Bowie et al., 2008a, 2010). One critical test for the hypothesis that functional impairment is intrinsically related to cognitive impairment would be evaluation of the functional relevance of cognition in a non-psychotic schizophrenia spectrum disorder with significant cognitive impairment.

Patients with Schizotypal Personality Disorder (SPD), a schizophrenia spectrum disorder that is phenomenologically and biologically related to schizophrenia (Siever et al., 1993), have impairments in several areas of cognitive functioning, such as episodic memory (Cadenhead et al., 1999), inhibition (Moritz and Mass, 1997), abstraction (Voglmaier et al., 1997), sustained attention (Roitman et al., 1997), working memory (Roitman et al., 2000; Mitropoulou et al., 2005) and context processing (McClure et al., 2008). These deficits are qualitatively similar but less severe than those seen in schizophrenia. Working memory in particular seems to be specifically impaired in individuals with SPD, relative to their other cognitive deficits (Mitropoulou et al., 2005), and may account for the other cognitive deficits of this disorder.

Individuals with SPD have well-documented deficits in interpersonal functioning, many of which are necessary to qualify for the DSM-IV diagnosis (American Psychiatric Association., American Psychiatric

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Association. Task Force on DSM-IV., 2000). However, although individuals with this disorder demonstrate cognitive deficits similar to what is seen in schizophrenia, much less is known about their everyday functioning in other domains such as independent living, educational attainment, and employment status. Recent research in schizophrenia and bipolar disorder has also focused on the identification of impairments in the functional skills that underlie everyday functioning, referred to as “functional capacity”. These skills have been found to be more proximal to real-world functioning than cognitive impairments and may mediate the correlation between cognition deficits and everyday disability. Performance-based assessments are routinely used as co-primary outcomes measures in treatment studies aimed at cognition in schizophrenia (Bowie et al., 2012) and have been the subject of systematic comparative studies to identify those measures most closely linked to neuropsychological performance (Green et al., 2011). Despite the qualitative similarity in cognitive performance of people with SPD to those with schizophrenia and the acknowledgment that SPD produces disability, there has never been a study of functional capacity performance in SPD and there has been remarkably little research on impairments in everyday functioning beyond acknowledgements of the social limitations that contribute to the diagnosis. Such a study could be important for pharmacological cognitive enhancement and cognitive remediation.

In this study we sought to systematically examine the everyday functioning of individuals with SPD, as well as two comparison samples: patients with Avoidant Personality Disorder (AvPD) and healthy controls (HC), by administering a clinical interview eliciting information about employment, education, and living situation. The AvPD patients were selected as a control for the possibility of nonspecific deficits on the part of SPD cases. We chose a personality-disordered comparison sample instead of a psychotic schizophrenia spectrum comparison group because we expected participants with SPD to be less impaired than schizophrenia patients, the assessment of whom would not provide any information about more moderate nonspecific impairments. Thus, we selected a comparison sample without psychosis in order to control for generalized impairments on the part of SPD patients that were less than those known to occur in schizophrenia but still relevant to a comparison with healthy people. We complemented this assessment with information from medical records, and informants when available, leading to a best-estimate milestone oriented assessment. In addition, we administered a battery of cognitive tests, as well as the UCSD Performance-Based Skills Assessment, a laboratory-based assessment of functional capacity that is gaining widespread popularity as a reliable and valid indicator of functional abilities that is markedly superior to patient self-report (Green et al., 2011; Leifker et al., 2010; Sabbag et al., 2011). We hypothesized that individuals with SPD would demonstrate reductions in everyday functioning compared to comparison samples (healthy and personality disordered). We also hypothesized that impaired performance on both our cognitive battery and the UPSA. Most important, we anticipated finding that these impairments in cognition and functional capacity would be correlated with each other and possibly related to real-world functioning in a manner consistent with that seen in schizophrenia. Thus, this is a comprehensive study of cognition, functional capacity and everyday outcomes in a population that shares characteristics with schizophrenia but without secondary factors (e.g., medication) that might modify these relationships, but has never been studied in this regard.

2. Materials and methods

2.1. Participants

Participants were 46 individuals with DSM-IV Schizotypal Personality Disorder (SPD), 38 with Avoidant PD (AvPD), and 55 healthy controls (HC). All participants were recruited from the community and resided within the New York City metro area. Recruitment, diagnosis, and

exclusion criteria for the SPD and HC participants in our program of research have been presented in previous publications (Mitropoulou et al., 2005), and participants with AvPD were recruited with similar strategies. Consensus diagnoses were reached in a meeting of all raters with an expert diagnostician after administration of structured psychiatric interviews. All participants were without abuse of illicit substances or alcohol within the past 6 months or a past history of substance dependence and had been free of psychotropic medication for at least 2 weeks. Participants with lifetime histories of psychosis or head trauma with significant neurological sequelae (unconscious > 10 min) were also excluded from participation. Demographic characteristics as well as scores on everyday functioning variables are presented in Table 1. All participants signed informed consent in accordance with the IRB approvals of this study at both the James J. Peters VAMC and Mt. Sinai School of Medicine.

2.1.1. Procedure

Following enrollment, participants met with a clinical psychologist who assessed current real-world functioning (living situation, social and educational history, employment status, wages earned) using a structured interview, which required detailed questions and substantive examples in answering questions. Participants who received clinical services at either of the research sites also released their medical records for confirmation of their self-report. Participants were administered the cognitive assessment battery and the UCSD Performance-Based Skills Assessment (UPSA) by a trained research technician within three weeks of enrollment and the everyday functioning assessment. This assessment technician was unaware of the results of the other assessments.

2.1.2. Cognitive assessments

This cognitive assessment was developed on the basis of previous work in schizotypal personality disorder. As a result, it is focused on processing speed and working memory, two of the abilities previously found (Mitropoulou et al., 2005) to be most impaired in this condition. As this study was initiated prior to the finalization of the MATRICS Consensus cognitive battery (MCCB), we were not able to select a battery that was informed by these developments.

2.1.2.1. Wechsler abbreviated scale of intelligence. The WASI is a brief measure of overall intelligence (Wechsler, 1999). We administered three subtests of the 4-subtest version: Vocabulary, Block Design, and Matrix Reasoning. Dependent variables were age-adjusted scaled scores for these three subtests.

2.1.2.2. DOT test. The Dot Test is an assessment of visuospatial working memory in wide research use (Silver et al., 2003). Subjects are presented a dot at a specific position on a standard size paper and then asked to reproduce it at the same location on a separate sheet after different periods of delay (no delay, 10, 20, or 30 s delay). The distance error at the 30 s delay minus the distance error at the immediate condition was the dependent variable of interest in the current study.

2.1.2.3. Paced auditory serial addition test (PASAT). The PASAT is a test of auditory verbal working memory that has been well described

Table 1
Sample characteristics.

	SPD group N = 46	AvPD group N = 38	HC group N = 55
Age (M (SD) in years)	37.5 (11.8)	31.2 (9.6)	32.3 (9.8)
Sex (% male)	60.9%	52.6%	37%
Living independently (%)	43.6%	52.9%	72.1%
Employed (%)	52.6%	69.7%	67.5%
Earned bachelor's degree or higher (%)	39.4%	64.5%	83.8%

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