Predictors of Social and Role Functioning in People at High Risk for Psychosis, First Episode of Schizophrenia, and Healthy Controls

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**BACKGROUND AND AIMS**

Deficits in social, role and cognitive functioning are well documented for people with schizophrenia spectrum disorders. Reports of social, role and neurocognitive functioning deficits in people at high risk for psychosis are similar to those found in first onset schizophrenia, and worse than healthy controls. However, there is very little research directly comparing the high risk and first episode groups. We present direct comparison of these groups from the CIDAR project sample and predictors for social and role deficits.

**METHODS**

**Participants:**
One hundred and sixty-five participants from the Boston CIDAR study were included in this sample. The sample included 45 prodromal high risk (PRO) participants and 39 matched controls (CON, C), 43 first episode (FE) participants and 38 matched controls (FE-C). In some analyses, the two control groups were combined (CON). Characteristics are summarized in Table 1.

**MEASURES AND STATISTICAL PROCEDURES:**
Assessments of social and role functioning, symptomatology and neurocognitive functioning (IQ, verbal learning, auditory attention and executive functioning) were administered as part of a larger battery of tests. Scores for the different groups on these measures (the Wisconsin Card Sort Task (WCST), Wechsler Memory Scale III Logical Memory (WMS-III LM), the Seidman Auditory Continuous Performance Test (Aud CPT), and University of Pennsylvania Smell Identification Test (UPSIT)) were used and are summarized in Tables 2. Correlational analyses were done to identify those variables significantly related to social and role functioning. The significant variables were then included in multiple regression models to predict social and role functioning. Separate regression models were done for neuropsychological and clinical assessments for PRO and FE-C and control each to social functioning and to role functioning.

**RESULTS**

**Table 1: Participant Demographic Information**

<table>
<thead>
<tr>
<th>Age (SD)</th>
<th>Gender Male (Female)</th>
<th>Education* M (SD)</th>
<th>Premorbid IQ* M (SD)</th>
<th>Current IQ** M (SD)</th>
<th>Parental SES*** M (SD)</th>
<th>Race</th>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.7 (4.0)</td>
<td>19 (20)</td>
<td>12.8 (3.3)</td>
<td>118.9 (15.2)</td>
<td>1210 (133)</td>
<td>1.7 (0.8)</td>
<td>27</td>
<td>PRO: Altered Positive Symptoms Syndrome 39</td>
</tr>
<tr>
<td>21.7 (3.2)</td>
<td>27 (18)</td>
<td>121.2 (2.7)</td>
<td>111.4 (14.6)</td>
<td>1147 (14.7)</td>
<td>7.0 (2.0)</td>
<td>27</td>
<td>SIPS: Structured Interview for Prodromal Syndromes (C): PRO-FE 6</td>
</tr>
<tr>
<td>21.5 (4.5)</td>
<td>25 (13)</td>
<td>14.1 (2.3)</td>
<td>110.8 (14.2)</td>
<td>116.8 (13.7)</td>
<td>2.0 (1.0)</td>
<td>26</td>
<td>SANS: Schedule of Negative Symptoms (C): PRO-FE 6</td>
</tr>
<tr>
<td>28 (15)</td>
<td>89 (6)</td>
<td>13.1 (2.6)</td>
<td>109.4 (14.2)</td>
<td>108.5 (13.5)</td>
<td>1.8 (0.9)</td>
<td>9</td>
<td>SF: Schizophreniform Disorder 5</td>
</tr>
<tr>
<td>2 (18)</td>
<td>6</td>
<td>13</td>
<td>9</td>
<td></td>
<td>11</td>
<td></td>
<td>SDFS: Structured Interview for Schizotypal Personality Disorder 9</td>
</tr>
<tr>
<td>21.5 (4.5)</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>SCH: Schizophrenia 36</td>
</tr>
</tbody>
</table>

**Table 2: Comparison of Neuropsychological tests in Control, Prodromal, and First Episode Groups**

<table>
<thead>
<tr>
<th>Measures and Procedures</th>
<th>Control</th>
<th>Prodromal</th>
<th>First Episode</th>
</tr>
</thead>
<tbody>
<tr>
<td>WCST: Perseverative Errors*</td>
<td>Mean (SD)</td>
<td>6.1 (2.8)</td>
<td>6.0 (2.2)</td>
</tr>
<tr>
<td>WMS-III LM Immediate Recall A + B1*</td>
<td>Mean (SD)</td>
<td>32.1 (6.3)</td>
<td>30.3 (8.2)</td>
</tr>
<tr>
<td>Aud CPT: Percent total hits QA*</td>
<td>Mean % (SD)</td>
<td>98 (3)</td>
<td>97 (4)</td>
</tr>
<tr>
<td>UPSIT Total*</td>
<td>Mean (SD)</td>
<td>38.3 (2.4)</td>
<td>32.9 (3.5)</td>
</tr>
</tbody>
</table>

**Notes:**
- *Percent Total Hits QA: F (2, 147) = 5.7, p = .004 between CON and FE (FE<CON)
- Executive Functioning: F (2, 146) = 11.0, p< .001 between CON, PRO and FE (CON & PRO < FE)
- Immediate Recall A + B1: F (2, 148) = 3.8, p = .03 between CON, PRO and FE (CON & PRO < FE)
- Percent total hits QA Memory: F (2, 147) = 5.7, p = .004 between CON and FE (FE<CON)
- Percent total hits QA Interference: F (2, 147) = 5.7, p = .004 between CON and FE (FE<CON)

**CONCLUSIONS**

Negative symptoms have the strongest and most consistent effect on predicting social and role functioning in the Prodrome and First Episode groups.

- Predictors of social functioning in the Prodrome group:
  - The clinical variables accounted for 75% of the variance with the SIPS positive and SIPS negative symptoms the only significant variables (negatively correlated to social functioning).
  - The neuropsychological variables accounted for 25% of the variance with the Auditory CPT Q3A interference (positively correlated to social functioning).

- Predictors of social functioning in the First Episode group:
  - The clinical and demographic variables accounted for 45% of the variance with negative symptoms the only significant variable (negatively correlated to social functioning).
  - The neuropsychological and demographic variables accounted for 33% of the variance with family SES the only significant variable (negatively correlated to social functioning).

- Predictors of role functioning for the Prodrome group included:
  - The clinical variables accounted for 67% of the variance with SIPS positive symptoms the only significant variable (negatively correlated to role functioning).
  - The neuropsychological variables accounted for 30% of the variance with WMS-III LM and Auditory CPT Q3A interference achieving significance (positively correlated to role functioning).

- Predictors of role functioning for the First Episode group included:
  - The clinical and demographic variables accounted for 47% of the variance with years of education the only significant variable (negatively correlated to role functioning).
  - The neuropsychological and demographic variables accounted for 54% of the variance with years of education and WMS-III LM the only significant variables (negatively correlated to role functioning).