**ABSTRACT**

Background. Cognitive impairment in schizophrenia is a core component of the disease; however, little is known about the profile of cognitive strengths and weaknesses in bipolar disorder. Recent studies have shown that bipolar disorder can impair cognition, and small sample sizes have not addressed the possibility of specific deficits in cognitive processing and memory of emotionally salient information.

Methods. A study included 166 patients with bipolar depression (mean WAIS-III score = 30.2; SD = 4.7) measured at baseline during a 34-site double-blind clinical trial and 44 healthy controls selected to match the demographic characteristics of the 2005 census. Subjects completed the Brief Assessment of Cognition in Affective Disorders (BAC-A), which includes the 6 standard measures of cognition from the Brief Assessment of Cognition in Schizophrenia (BACS) (attention, symbol coding, digit-sлушивание, Tower of London, verbal learning test, and verbal fluency), plus additional tests of verbal affective interference and emotional disinhibition ("emotional Stroop test").

Results: Compared to the normative sample, patients with bipolar depression had similar levels of pre-morbid intelligence as measured by WAIS-III Full-Scale scores, yet test performances on measures of standard cognition, with a score difference between groups ranging between 3.4 and 8.0 (p = 0.01). Patients with bipolar disorder showed poorer immediate and delayed recall of words without emotional content relative to emotionally-laden words (p = 0.025). The BAC-A tests designed to measure specific affective processing showed similar sensitivity to standard BAC tests. However, whereas patients with emotional word sets comprised of emotional words contributed significant additional between-group variance beyond the standard measures, emotional words failed to show the same pattern.

Conclusions. A brief battery of tests demonstrated that patients with bipolar disorder have reduced standard cognition on measures of unique emotional processing.

**INTRODUCTION**

Cognitive deficits in bipolar disorder are usually thought to be caused by a wide array of cognitive deficits. The impact of schizophrenia on cognitive function has led researchers to investigate cognitive impairment caused by the illness as an important aspect of bipolar disorder.

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Cognitive Deficits in Bipolar Disorder Measured in the Brief Assessment of Cognition in Affective Disorders (BAC-A)

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**RESULTS**

**Table 1. Demographic Comparison**

<table>
<thead>
<tr>
<th>Subject</th>
<th>N</th>
<th>Age (y)</th>
<th>Education</th>
<th>Sex</th>
<th>Race</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy controls</td>
<td>n = 166</td>
<td>29.8</td>
<td>14.6</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Bipolar disorder</td>
<td>n = 354</td>
<td>29.3</td>
<td>14.9</td>
<td>52</td>
<td>48</td>
</tr>
</tbody>
</table>

**Figure 1. Affective Interference Test**

- Patients are presented with 23 words, 10 of which are fruits and vegetables (nonaffective words) and 13 of which are erotic, gun, moment, and alarm.
- Patients with bipolar disorder scored lower than healthy controls on the BAC-A affective interference test (Figure 6).

**Figure 2. Emotion Inhibition Test**

- Patients with bipolar depression scored lower than healthy controls in the BACS emotion inhibition test (Figure 5).

**Figure 3. Healthy Controls vs Patients With Bipolar Disorder on Traditional BACS Tests**

- Patients with bipolar depression had similar levels of premorbid intelligence as measured by WAIS-III Full-Scale scores, yet test performances on measures of standard cognition, with a score difference between groups ranging between 3.4 and 8.0 (p = 0.01).

**Figure 4. Healthy Controls vs Patients With Bipolar Disorder on Traditional BACS Tests**

- Patients with bipolar depression and matched healthy controls.

**Figure 5. Patients With Bipolar Disorder and Matched Healthy Controls**

- Patients with bipolar depression had similar levels of premorbid intelligence as measured by WAIS-III Full-Scale scores, yet test performances on measures of standard cognition, with a score difference between groups ranging between 3.4 and 8.0 (p = 0.01).

**Figure 6. Positive and Negative Mood Recall**

- Patients with bipolar depression scored lower than healthy controls on the BACS affective interference test (Figure 6).

**Figure 7. Affective interference differences score**

- The affective interference differences score contributed significant unique variance to the discrimination between the bipolar patients and healthy controls; R2 change = 0.07, df = 1, 517, p = 0.001.

**Table 2. Affective Interference Test**

<table>
<thead>
<tr>
<th>Subject</th>
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<th>Categorical &amp; Numeric Comparison</th>
<th>t</th>
<th>p</th>
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<tbody>
<tr>
<td>Healthy controls</td>
<td>n = 166</td>
<td>30.0</td>
<td>48.0</td>
<td>6.3</td>
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<tr>
<td>Bipolar disorder</td>
<td>n = 354</td>
<td>21.4</td>
<td>25.1</td>
<td>3.0</td>
</tr>
</tbody>
</table>

**Figure 8. Conclusion**

- The purpose of this study was to understand how healthy controls perform on the BAC-A.
- Conclusions:
  - Patients with bipolar depression learned negative words faster than positive words. Patients with bipolar depression learned both types of words at the same rate.
  - Differences in word type: F = 4.8, p < 0.01.

**REFERENCES**