Neuropsychological Correlates of Functional Disability in Outpatients with Borderline Personality Disorder

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Key Symptom Dimensions of BPD

- Emotion Regulation
- Interpersonal Functioning
- Impulse Control
Disability in BPD

• Epidemiological surveys indicate that BPD may be associated with significant physical and mental disability (Grant et al., 2004)

• Specific domains of functional disability in BPD, however, have not been received significant attention (Skodol et al., 2002)
Neuropsychological Correlates of Disability in Psychiatric Illnesses

• Clear evidence of links between neuropsychological deficits and functional disability in specific patient groups
  – Schizophrenia (Bowie et al., 2008)
    • Executive functions, verbal memory, and working memory
  – Bipolar disorder (Tabarés-Seisdedos et al., 2008)
    • Visual-motor abilities
Neuropsychological Domains

- Attention
- Working Memory
- Episodic Memory
- Executive Functions
- Visuospatial Abilities
- Motor
- Perceptual
Neuropsychological Deficits in BPD

Ruocco (2005)
Current Study

• Characterized the nature and extent of disability in specific domains for outpatients with BPD

• Evaluated the relationship between functional disability and neuropsychological functioning

• Conducted preliminary analyses to determine whether there may be key neuropsychological deficits among patients reporting high versus low global disability
Participants

• 28 outpatients with BPD recruited from the Centre for Addiction & Mental Health as well as online postings
• Mean age of 30.3 years (SD=9.46) and 93% were female
• At time of assessment, completed average of 14.1 years of education (SD=2.5)
• Mean IQ was 109.8 (SD=7.3)
Methods

• Patients were recruited as part of a larger neuropsychological and brain imaging study of BPD
• All participants were required to provide a negative urine toxicology screen before completing laboratory procedures
• All participants passed formal tests of neuropsychological symptom validity
World Health Organization Disability Assessment Schedule (WHO DAS 2.0)
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- For the current analyses, an item-response theory scoring algorithm was employed.
- Scores ranged from 0 (no disability) to 100 (full disability).
Disability in Outpatients with BPD

Mean=37.2
>90th %ile

Disability Rating

WHODAS Total Score
Understanding and Communication
Getting Around
Self-Care
Getting Along with People
Life Activities
Participation in Society
## Neuropsychological Battery

<table>
<thead>
<tr>
<th>Category</th>
<th>Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visuospatial Construction</td>
<td>• Rey-Osterrieth Complex Figure Task (ROCFT) (copy trial)</td>
</tr>
<tr>
<td>Verbal Episodic Memory</td>
<td>• Hopkins Verbal Learning Test-Revised (delayed recall)</td>
</tr>
<tr>
<td>Visual Episodic Memory</td>
<td>• Brief Visuospatial Memory Test-Revised and ROCFT (immediate and delayed recall)</td>
</tr>
<tr>
<td>Cognitive Flexibility</td>
<td>• Penn Conditional Exclusion Task (“efficiency” score)</td>
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<tr>
<td>Response Inhibition</td>
<td>• Conners Continuous Performance Test-2 (commissions)</td>
</tr>
<tr>
<td>Planning/Problem-Solving</td>
<td>• DKEFS Tower Task (move-accuracy ratio)</td>
</tr>
<tr>
<td>Working Memory</td>
<td>• Penn Letter N-back Task (“efficiency” score)</td>
</tr>
</tbody>
</table>
Visuospatial Construction

- Rey-Osterrieth Complex Figure Test
Cognitive Flexibility

• Penn Conditional Exclusion Test
Response Inhibition

• Conners Continuous Performance Test-2

  X

  (don’t press the button!)
Planning/Problem-Solving

- DKEFS Tower Task
Neuropsychological Functioning

![Graph showing mean z-scores for various neuropsychological functions.](image)
Links between Specific Disabilities and Cognitive Domains

- **Understanding and Communication**: Cognitive Flexibility ($r=-.50$)
- **Self-Care**: Visuospatial Construction ($r=-.62$) and Visual Memory ($r=-.47$)
- **Participation in Society**: Response Inhibition ($r=-.40$)
Neuropsychological Deficits for Patients with High vs Low Disability

Planning
Cognitive Flexibility
Response Inhibition

Effect Size Difference (Cohen's d)

Low (n=5): <85\textsuperscript{th} percentile compared to normative population
High (n=6): >95\textsuperscript{th} percentile compared to normative population
Implications

• Self-reported difficulties in understanding and communicating with others may be associated with objective deficits in cognitive set-shifting

• Problems with self-care, while the least frequently reported problem by patients, could be underpinned by complex visuospatial and constructional deficits and visual memory problems
Implications (cont’d)

• Obstacles to participating in society may be linked to problems with controlling behaviours.

• While preliminary, there may be important subgroups of patients who show high levels of global disability and concomitant deficits in three key executive functions: planning/problem-solving, cognitive flexibility and response inhibition.

• These cognitive domains may serve as critical targets in rehabilitation programs for more severely disabled patients with this illness.
Limitations and Future Research

- Determine whether nature and extent of functional disability in BPD differs from disorders which frequently co-occur with BPD (e.g., major depression, PTSD) (Grant et al., 2004)

- Evaluate the differential and shared contributions of neuropsychological functioning and core symptom dimensions (e.g., emotion dysregulation) to disability
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