**Introduction**

- No embedded validity indicators have combined the WAIS-IV with the Test of Premorbid Functioning (TOPF), a co-normed measure used to provide premorbid estimates of those abilities captured by the WAIS-IV.
- Previous research (Greve, Lotz, & Bianchini, 2008) found that discrepancies between demographically based estimates and obtained scores on FSIQ and VIQ of the WAIS-III accurately discriminated between patients meeting criteria for probable or definite malingered neurocognitive dysfunction (MND) and those not meeting criteria for MND in a sample of traumatic brain injury (TBI) patients.
- This study sought to create and operationally define a new term: Excessive Decline from Premorbid Function (EDPF; see table 1).
- Additionally, this study sought to examine the effectiveness of two indicators of Excessive Decline from Premorbid Functioning (EDPF) as embedded performance validity tests (PVTs).

**Table 1: Proposed Definition and Criteria for Excessive Decline from Premorbid Functioning (EDPF)**

**Definition:**
Excessive Decline from Premorbid Functioning (EDPF) is defined as a discrepancy between predicted premorbid ability and current test performance that is so atypical of individuals with true neurocognitive impairment that it is likely the product of performance invalidity.

**Criteria:**
1. A quantitatively measurable discrepancy between obtained test performance and predicted premorbid functioning that exceeds empirically-derived cutoff values for performance invalidity.
2. The method for predicting premorbid functioning is empirically validated, psychometrically based, reproducible across evaluators, and derived from data that are relatively impervious to invalidity (e.g., demographic information).
3. The discrepancy between obtained test performance and predicted premorbid functioning cannot be better accounted for by true neurologic injury or illness.

**Methods**

- 188 patients referred for neuropsychological evaluation, excluding for dementia, intellectual disability, or left-sided cerebrovascular accident.
- Participants were 51% female, 93% white, with a mean age of 48.2 (SD=12.7) and an average total years of education of 13.8 (SD=2.3).
- Participants were placed into one of two groups according to whether they passed all PVTs (n=147) or failed ≥ 2 PVTs (n=41).
- TOPF predicted index scores were based off simple demographics alone, not word reading performance.
- Two new validity indicators were then created and ROC analyses were conducted.

**EDPF Formulas**

- **EDPF-VW** = (VCI predicted – VCI obtained) + (WMI predicted – WMI obtained)
- **EDPF-FSIQ** = (FSIQ predicted – FSIQ obtained)

**Results**

**Table 2: Demographic predicted versus obtained WAIS-IV Index scores and EDPF scores by group**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Cutoff</th>
<th>Sens</th>
<th>Cutoff</th>
<th>Sens</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCI predicted – VCI obtained</td>
<td>11.6 ± 8.6</td>
<td>1.7 ± 10.0</td>
<td>16.51**</td>
<td></td>
</tr>
<tr>
<td>WMI predicted – WMI obtained</td>
<td>20.2 ± 11.8</td>
<td>3.4 ± 12.4</td>
<td>38.36**</td>
<td></td>
</tr>
<tr>
<td>PRI predicted – PRI obtained</td>
<td>9.9 ± 13.0</td>
<td>2.9 ± 12.2</td>
<td>5.83*</td>
<td></td>
</tr>
<tr>
<td>PSI predicted – PSI obtained</td>
<td>22.1 ± 14.9</td>
<td>5.4 ± 13.7</td>
<td>26.54**</td>
<td></td>
</tr>
<tr>
<td>EDPF-VW</td>
<td>31.8 ± 17.7</td>
<td>5.1 ± 18.3</td>
<td>34.04**</td>
<td></td>
</tr>
<tr>
<td>EDPF-FSIQ</td>
<td>18.4 ± 11.4</td>
<td>3.5 ± 10.3</td>
<td>35.76**</td>
<td></td>
</tr>
</tbody>
</table>

Note: *significant at p<.005; **significant at p<.001

**Table 3: AUC and sensitivity for EDPF-VW and EDPF-FSIQ**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>AUC</th>
<th>Cutoff</th>
<th>Sens</th>
<th>Cutoff</th>
<th>Sens</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDPF-VW</td>
<td>0.850</td>
<td>28</td>
<td>0.61</td>
<td>34</td>
<td>0.54</td>
</tr>
<tr>
<td>EDPF-FSIQ</td>
<td>0.837</td>
<td>18</td>
<td>0.56</td>
<td>21</td>
<td>0.46</td>
</tr>
</tbody>
</table>

**Conclusions**

- Both EDPF-FSIQ and EDPF-VW demonstrated excellent discrimination between patients providing valid versus invalid test performance.
- Both EDPF-FSIQ and EDPF-VW produced higher classification accuracy rates than traditional embedded validity measures (e.g., RDS; see Schroeder et al., 2012).
- An advantage of EDPF is the incorporation of demographic estimates of premorbid ability, as well as current performance on testing.
- Performance on multiple tests spanning different cognitive domains allows for greater sensitivity to a variety of examinee approaches to suspect performance.
- EDPF indices used in this study are easily calculated. Once WAIS-IV raw scores and demographic information are entered into ACS scoring software, the examiner need only access the TOPF report printout.

**References**