Long term stability of the French WISC-IV index scores: Intellectual strengths and weaknesses

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INTRODUCTION

- The Wechsler Intelligence Scale for Children-fourth edition (WISC-IV) is frequently used to assess a child’s overall intellectual ability.
- The clinical interpretation of the WISC-IV is currently based on a Full Scale Intelligence Quotient (FSIQ) and 4 Index standard scores (Verbal Comprehension: VCI; Perceptual Reasoning: PRI; Processing Speed: PSI; and Working Memory: WMI).
- The analysis of these Index scores allows the practitioners to develop hypotheses regarding normative and personal strengths and weaknesses.

METHOD

Sample

- 119 non clinical French-speaking children;
- Aged between 8 and 12 years old;
- None of them has doubled or skipped class;
- Relatively representative of the Geneva children’s population (sex, SES).

<table>
<thead>
<tr>
<th>N</th>
<th>Mean Age T1 (SD)</th>
<th>Mean Age T2 (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Girls</td>
<td>60</td>
<td>8.80 (.76)</td>
</tr>
<tr>
<td>Boys</td>
<td>59</td>
<td>8.69 (.65)</td>
</tr>
<tr>
<td>Total sample</td>
<td>119</td>
<td>8.75 (.70)</td>
</tr>
</tbody>
</table>

Material

- The 10 core subtests and the subtest Picture Completion of the WISC-IV were administered to all children in order to calculate the 4 Index standard scores and the FSIQ.

Procedure

- First, the mean of the child’s 4 Index standard scores is computed.
- Then for each child, the mean of all Index standard scores is subtracted from each Index standard score.
- Referring to the critical value needed for significance proposed by Grégoire (2009), the deviation from the mean is evaluated in order to determine personal strengths and/or personal weaknesses.

RESULTS

- The means of child’s all Index standard scores range from 82.3 to 125.3 (mean: 101.6; sd: 9.7) at Test, and from 84.5 to 128 (mean: 103.2; sd: 8.5) at Retest.
- Regarding the number of deviant scores from the mean, most children have at least one.

<table>
<thead>
<tr>
<th>Number of deviant Index score</th>
<th>Kieng et al. (2013)</th>
<th>Grégoire (2009)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Test</td>
<td>Retest</td>
</tr>
<tr>
<td>0</td>
<td>37.0%</td>
<td>25.2%</td>
</tr>
<tr>
<td>1</td>
<td>21.8%</td>
<td>26.1%</td>
</tr>
<tr>
<td>2</td>
<td>32.8%</td>
<td>42.0%</td>
</tr>
<tr>
<td>3</td>
<td>6.7%</td>
<td>5.9%</td>
</tr>
<tr>
<td>4</td>
<td>1.7%</td>
<td>0.8%</td>
</tr>
</tbody>
</table>

- On both assessments:
  - VCI: 2/3 children show a personal weakness, 16/30 children show a personal strength and for 60/86 children, VCI is not different from the mean.
  - PRI: 7/14 children show a personal weakness, 4/12 children show a personal strength and for 74/93 children, PRI is not different from the mean.
  - PSI: 4/10 children show a personal weakness, 15/26 children show a personal strength and for 66/83 children, PSI is not different from the mean.
  - WMI: 24/36 children show a personal weakness, 3/5 children show a personal strength and for 59/78 children, WMI is not different from the mean.
- Between both assessments, 65.5%, 71.4%, 71.4% and 72.3% of children present stability in personal cognitive strength, weakness or normal for VCI, PRI, PSI, and WMI, respectively.
- Note that only 22.7% of children Index scores profiles remained exactly in the same personal strength/normal/weakness for all the 4 Index scores on both assessments.

CONCLUSIONS

- In the general population, most children show 1-2 personal strength/weakness in their individual profile.
- Our results on a sample of 119 children suggest that personal strengths/weaknesses interpreted with the WISC-IV Index scores are not stable in long term.
- Making predictions about future strengths or weaknesses are not recommended.

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