Assessing the factor structure of the Behavior Rating Inventory of Executive Function (BRIEF) in a Tourette’s population

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Is the BRIEF a valid measure of TS patients’ executive functioning?

**INTRODUCTION**

Significant attention has been paid to the role of executive functions in Tourette Syndrome. One prominent way to measure executive functions is the BRIEF. Because of its nine subscales, the BRIEF helps clinicians describe patients’ executive functioning. Therefore important to assess whether the BRIEF is a valid measure of executive functioning for TS patients.

**METHODS**

Confirmatory Factor Analysis assessed the data against a two factor solution and a three factor solution in three participant cohorts.

Patients (n = 215)  Parents (n = 211)  Teachers (n = 127)

**RESULTS**

Factor loadings were significant and some fit indices met recommended thresholds of <0.05 for RMSEA and SRMR and >0.95 for CFI and TLI.

<table>
<thead>
<tr>
<th>Model</th>
<th>RMSEA</th>
<th>SRMR</th>
<th>CFI</th>
<th>TLI</th>
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</thead>
<tbody>
<tr>
<td>Patient Self Report – Two Factor Solution</td>
<td>0.154</td>
<td>0.663</td>
<td>0.913</td>
<td>0.880</td>
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<tr>
<td>Parent Self Report – Three Factor Solution</td>
<td>0.121</td>
<td>0.646**</td>
<td>0.951**</td>
<td>0.536*</td>
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<tr>
<td>Parent Informant Report – Two Factor Solution</td>
<td>0.177</td>
<td>0.659**</td>
<td>0.930</td>
<td>0.875</td>
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<tr>
<td>Teacher Informant Report – Three Factor Solution</td>
<td>0.147</td>
<td>0.643**</td>
<td>0.935*</td>
<td>0.914</td>
</tr>
<tr>
<td>Teacher Informant Report – Three Factor Solution</td>
<td>0.198</td>
<td>0.675*</td>
<td>0.900</td>
<td>0.853</td>
</tr>
</tbody>
</table>

**CONCLUSION & IMPLICATIONS**

The significant factor loadings and borderline fit indices support the validity of the BRIEF in a TS population. The three factor solution demonstrated relatively better fit, suggesting that the BRIEF data best represents executive functioning as a construct with three underlying facets. In light of this, it may be worth re-evaluating the current practice of collapsing patient BRIEF subscale scores into two composite indices.

The cohesive internal structure of the BRIEF supports its use as a clinical tool. Specifically, the data’s acceptable performance in factor analysis supports one of the main advantages of the BRIEF – its easy to understand subscores.

Finally, the support for the BRIEF’s validity in a TS population means that these scores can be compared to BRIEF data in other validated populations. This is particularly important given the high prevalence of comorbidity in TS.

**KEY MESSAGE**

The results support the use of the BRIEF as a valid measure of executive functioning in a TS population.

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