**Title:** Initial Validation of The Behavioral Inflexibility Scale – Clinical Interview

**Authors:** Brian Boyd¹, James Bodfish², Luc Lecavalier³, Clare Harrop⁴, Aaron Dallman⁴

**Introduction:** Current outcome measures are not adept at detecting the incremental changes seen in individuals with autism spectrum and related disorders, have not been consistently validated with these populations, and often fail to measure functional or clinically-relevant outcomes. In addition, many of the existing outcome measures solely rely on parent or caregiver report, making them more prone to placebo effects and more difficult to include as blinded outcome measures in clinical trials. Repetitive and inflexible behaviors are among the most common forms of aberrant behavior that occur in the context of neurodevelopmental disorders; however, existing repetitive behavior measures also heavily rely on parent report. It then becomes essential to develop tools that use other measurement formats to move the field towards more objective assessment of the functional impact of these behaviors. Our multisite team developed a structured clinical interview version of the Behavioral Inflexibility Scale (BIS-CI) to meet this objective.

**Methods:** The BIS-CI is a structured clinical interview version of the parent reported BIS. The BIS-CI consists of two sections (a) a 25 item symptom checklist (scored as present / absent), and (2) a set of seven questions designed to provide a multidimensional assessment of the functional impact of the items endorsed in the symptom checklist portion of the interview. The interview questions are scored using a 5-point Likert severity rating scale based on the caregiver’s response to the question. The BIS-CI derives a total score ranging from 0 (no impairment) to a maximum score of 28 (maximum impairment). To understand the psychometric properties of the BIS-CI, n=144 children with ASD, ages 3 – 17 years, and their families completed a number of clinic-based measures to assess validity and reliability. Trained clinicians conducted interviews with parents as part of the clinic-based assessment battery.

**Results:** Child demographic data: 80% of children were male, 71% were white, the mean age was 9 years old, and a substantial majority had at least one co-occurring condition (e.g., ADHD). Validity data: Factor analysis suggested a 1 factor solution with factor loadings ranging from 0.50 to 0.74 and acceptable fit indices (RMSEA = 0.09, CLI = 0.961, TLI = 0.927). The BIS-CI was correlated the parent BIS at 0.65. Correlations with the Repetitive Behavior Scales-Revised (RBS-R), as a form of convergent validity, ranged from 0.38 – 0.58. The correlation with the Social Communication Questionnaire (SCQ), as a form of discriminant validity, was 0.26. Additional measures further demonstrating convergent and discriminant validity will be presented. The BIS-CI was not significantly correlated with child IQ (p > .90). Reliability data: Test-retest reliability was 0.87 and Cronbach’s alpha was 0.80.

**Discussion:** The BIS-CI is a valid and reliable measure that can be used to assess the functional impact of the repetitive and inflexible behaviors of children with ASD. The brevity of the measure also suggests it could be feasible to include in clinical trials. Future work will be needed to examine the measure’s sensitivity to change over time.


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¹ University of Kansas
² Vanderbilt University Medical Center
³ Ohio State University
⁴ University of North Carolina at Chapel Hill