Notice of the Final Oral Examination
for the Degree of Doctor of Philosophy

of

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MSc (University of Victoria, 2011)
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"Validation of an Executive Function Screener in a Sample of Adolescents with Neurological Disorders"

Department of Psychology

September 18, 2017
10:00 A.M.
Clearihue Building
Room B017

Supervisory Committee:
Dr. Mauricio Garcia-Barrera, Department of Psychology, University of Victoria (Supervisor)
Dr. Chand Taneja, Department of Psychology, UVic (Member)
Dr. Sarah Macoun, Department Educational Psychology and Leadership Studies, UVic (Outside Member)
Dr. Gina Harrison, Department of Educational Psychology and Leadership Studies, UVic (Additional Member)

External Examiner:
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Dr. Sara Ellison, Department of Physics and Astronomy, UVic

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Abstract

Objective: It is thought that executive functions (EF) emerge as outcomes of interactions between cognitive and emotional processes. They are an integral component of the growing regulatory abilities of children and adolescents and are important for academic success, attainment of social competence, and psychological development, among others. It is essential to evaluate them during neuropsychological assessment. However, they are difficult to capture with performance-based, neuropsychological assessment tools. These were once considered 'gold standard' measurements of EF but have been critiqued for a number of reasons. As such, rating scales have been useful as a complementary, perhaps eventual alternative, to performance-based tests. Behavioural screeners have high replicability, making them practical for use across various populations, and evaluate everyday behaviours. A four-factor executive function screener derived from the Behavior Assessment System for Children (BASC; Garcia-Barrera et al., 2011) was previously developed and validated in a variety of age ranges and groups. However, with the exception of children with ADHD, the effectiveness of the screener has not been examined in individuals with neurologic disorder. In this population, EF are often impaired, due to delays or disruptions in normal brain development. Given these challenges in this population, this study 1) derived a similar screener for use in adolescents with neurologic disorder, using a more recent version of the BASC (i.e., BASC-2), and 2) evaluated it against a commonly used EF rating scale [i.e., the Behavior Rating Inventory of Executive Function (BRIEF)] as well as performance-based executive function measures. Thirdly, this study characterized the nature of the EFs of this clinical population, given that EF deficits are often central characteristics in many neurological disorders.

Participants and Methods: An archival analysis was conducted with 107 neurologically-affected adolescents seen for neuropsychological assessment at
Queen Alexandra Centre for Children's Health. Patients were included in the study if they had at least low average intellectual functioning, had a BASC-2 completed by a parent, and were between the ages of 12-18 years. Confirmatory factor analysis was used to evaluate the derived screener. Bivariate correlation analyses were used to evaluate convergent validity. To characterize the nature of this sample's EF profiles, differences among groups were measured in a profile analysis via multivariate analysis of variance.

Results: The four-factor model of EF as measured by the BASC-2 screener fit the data most optimally, indicating that the structure of EF reflects the four-factor model observed in other studies. Convergent validity was observed with the BRIEF but not the performance-based tasks. Profile analysis indicated that there were some overall differences among some of the neurological group and BASC-2 scores as well as individual differences on the various factor scores.

Conclusions: These findings support the four factor model measured by the screener in adolescents with neurological disorders. Given the consistency between the factor structure in this population and previous studies measuring this screener in healthy populations, and the convergence of the screener and the BRIEF, these findings contribute to the body of literature supporting this executive functioning screener as a complement to traditional, performance-based tasks.