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

of

SHELIZA ALI

MSc (University of York, 2012)
BSc (University of the West Indies, 2009)

“An Investigation of the Diagnostic Utility of Intraindividual Variability in Attention Deficit/Hyperactivity Disorder: An ex-Gaussian Approach”

Department of Psychology

Thursday, June 18, 2020
10:00 A.M.
Conducted Remotely

Supervisory Committee:
Dr. Sarah Macoun, Department of Psychology, University of Victoria (Supervisor)
Dr. Stuart MacDonald, Department of Psychology, UVic (Member)
Dr. Gina Harrison, Department of Educational Psychology and Leadership Studies, UVic (Outside Member)

External Examiner:
Dr. Sarah Karalunas, School of Medicine, Oregon Health and Science University

Chair of Oral Examination:
Dr. Francis Nano, Department of Biochemistry and Microbiology, UVic

Dr. David Capson, Dean, Faculty of Graduate Studies
Abstract

This dissertation aimed to investigate the utility of the ex-Gaussian approach to estimating intraindividual variability (IIV) of response times (RT) in diagnosing attention deficit/hyperactivity disorder (ADHD) in children ages 6 to 13 years old. Higher IIV is consistently noted in children with ADHD, but also with other disorders commonly associated with impairments in attention. Firstly, the relationship between IIV and attention abilities was investigated both in relation to parent ratings and participants' objective performance. Secondly, IIV's utility as an objective measure for supplementing behavioural ratings in the diagnosis of ADHD, a diagnosis which is currently primarily assigned based on informant interviews and ratings of attention, was assessed. Participants included 46 children with ADHD and 58 children without ADHD. Children completed computerized tasks to estimate IIV and assess inattention and hyperactivity/impulsivity. Parents completed questionnaires aimed at assessing attention and hyperactive/impulsive behaviours of participants. Analyses revealed that IIV was predictive of parent ratings of inattention and hyperactivity/impulsivity as well as the number of omission errors made by participants. Regarding diagnostic utility, IIV significantly predicted group membership (ADHD vs Control). However, IIV did not improve diagnostic accuracy when parent ratings were used, such that parent ratings were superior at determining diagnosis. Overall, current results support the use of IIV, based on the ex-Gaussian approach, as an objective measure of attention problems such that it appears to be superior to omission errors on sustained attention CPT-type tasks. Additionally, while parent ratings of attention impairment remain the best predictor of ADHD diagnostic status, IIV may be helpful in determining when further assessment is required in the absence of those ratings.