

## **Neurocognitive Heterogeneity within ADHD and Typically Developing Children**

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ADHD is a prevalent developmental disorder characterized by inattention and/or hyperactivity, which can impact relationships, academic performance, and career goals (Harpin, 2005). Recent work has found heterogeneity in neurocognitive profiles of children with ADHD based on symptom burden and executive functioning that nest within heterogeneity in the typically developing (TD) population (Vaidya et al., 2019). This project replicates and expands upon the methods of Vaidya et al. (2019) to determine whether affective processing and risk taking measures refine these neurocognitive profiles in TD and ADHD children. We conducted community detection, a data-driven method of clustering along patterns of data to form subgroups, to assign children with ADHD (n=47) and TD children (n=33), aged 8-12 years (mean=9.85), to neurocognitive subcommunities. Our sample replication found subcommunities that aligned to a subset of those identified by Vaidya et al. (2019). The addition of affective processing and risk taking measures resulted in two distinct subcommunities, which were either primarily ADHD or TD groups and each absorbed certain subcommunities of the Vaidya replication. Thus, the addition of features resulted in less diversity than that found in the Vaidya replication. Perhaps the addition of fewer and less noisy measures would instead refine the clustering to reflect diversity across all domains. Overall, these results further validate the existence of neurocognitive heterogeneity in both TD and ADHD children. Importantly, care should be given to the selection of those added features to refine, but not overwhelm, diversity in each neurocognitive domain.