

Retained Primitive Reflexes in ADHD and ASD among Children in an Inpatient Psychiatric Setting

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Executive function abilities are higher-order cognitive functions that help to control behaviors and reach goals and also impact functional cognition. Executive function impairments are commonly seen in neurodevelopmental disorders such as Attention Deficit Hyperactivity Disorder (ADHD) and Autism Spectrum Disorder (ASD). One proposed way to better understand the underlying deficits is through retained primitive reflexes including the Asymmetrical Tonic Neck Reflex (ATNR), Symmetrical Tonic Neck Reflex (STNR), and Tonic Labyrinthine Reflex (TLR). These reflexes have been found to be associated with ADHD symptoms.

The purpose of the current study is to examine the degree to which reflexes are associated with ADHD and ASD children in an inpatient psychiatric setting. Specific research questions are: 1) What is the most common reflex?; 2) Among children diagnosed with ADHD and ASD, what is the most common reflex?; and 3) To what degree are reflexes associated with ADHD, ASD, and executive function deficits?

The current study employed a cross-sectional study design using information obtained during the routine course of treatment. The sample (N = 196) has a mean age of 9.3 years and is 74% male, 74.5% White, 8.7% Black, and 10.7% biracial. The children were assessed during the occupational therapy (OT) evaluation by positioning the child, providing instructions, and observing the severity of the retained reflex through clinical observations. Reflexes were determined to be absent, mild, moderate, or severe. Symptoms and executive function deficits were assessed by the Conners' 3 Parent Rating Scale. Descriptive, correlation, and regression analyses were used to investigate the research questions.

Results demonstrated that 90.3% of the sample had at least one retained reflex present with the ATNR being the most common. Among the 55.6% of children diagnosed with ADHD, the most common reflex was the ATNR (81.5%). Among the children diagnosed with ASD, the most common reflex was also the ATNR (91.1%). Correlational analyses revealed that the

Primitive Reflexes in ADHD and ASD

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Primitive reflexes are associated with executive function deficits among children in an inpatient psychiatric setting.

positively associated with inattention ($r = .15$, $p = .04$), DSM-5 ADHD Inattentive symptoms ($r = .18$, $p = .02$), and deficits ($r = .18$, $p = .02$). The STNR was significantly positively related to executive function deficits ($r = .16$, $p = .01$), Inattentive symptoms ($r = .17$, $p = .03$). Linear regression analyses revealed that a model including the ATNR, STNR predicted DSM-5 ADHD Inattentive symptoms and executive function deficits with the coefficient for the ATNR being significant.

Conclusions are that the ATNR is the most common retained reflex within this inpatient sample. The ATNR is also among the children with ADHD and ASD. Retained reflexes, the ATNR and STNR specifically, are most significantly associated with inattention and executive function deficits with the ATNR emerging as a marginally significant predictor of executive function deficits. These findings are consistent with dissolution theory and could have implications for working with children with especially those in inpatient psychiatric settings whose cognitive processes impair their daily routine. The current study provides an evidenced-based rationale for one element of current occupational therapy pediatric practice, the assessment and treatment of primitive reflexes in children with concurrent diagnoses of ADHD or ASD. Data collected in this proposal can encourage more closely on this area in assessment, as well as to recommend more specific interventions to address reflexes to facilitate improved functional cognition.

The Asymmetrical Tonic Neck Reflex (ATNR) and Symmetrical Tonic Neck Reflex (STNR) are most significantly associated with inattention and executive function deficits among an inpatient psychiatric sample. There are implications for evidence-based treatment of children with ADHD or Autism.

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