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## Stability of adaptive behaviors in middle-school children with autism spectrum disorders

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## Abstract

This 5-year follow-up study examined the stability of adaptive functioning in two cognitive ability groups of children with an autism spectrum disorder (ASD). Nonverbal intelligence (NVIQ) was assessed at the time of this study and no participant changed cognitive group membership from the previous study (High NVIQ  $\geq$  97; Low NVIQ  $\leq$  56). In each group, adaptive skills, as measured by the Vineland Adaptive Behavior Scales (VABS) composite standard score, were significantly below NVIQ. Both groups exhibited a significant decrease in the VABS composite *standard* scores over time, but analysis of VABS total *raw* scores showed a significant increase in adaptive functioning over time in the High NVIQ group with no change in the Low NVIQ group. Examining the profile of VABS age equivalent scores in each NVIQ group revealed potential suggestions for interventionists. Caregivers of the Low NVIQ group endorsed having significantly higher stress levels related to their child's level of adaptive functioning. Groups did not differ significantly in the quantity of treatment received within the 9 months preceding this study or caregiver satisfaction with intervention services. Caregivers from both groups identified a variety of school-based service needs to address their child's adaptive skill deficits.

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Autism spectrum disorders (ASD) refer to a group of neurodevelopmental disorders (Autistic Disorder; Asperger's Disorder; Pervasive Developmental Disorder, Not Otherwise Specified) characterized by core impairments in social, communication, and behavior (restrictive, repetitive and stereotyped behaviors and interests) (Mottron & Burack, 2001). Although individuals with ASD share these difficulties, the developmental course, range, and severity of these core symptoms and associated symptom impairments (e.g., intellectual and adaptive ability) can vary widely from individual to individual. Outcome studies have reported that, while some individuals with ASD achieve near to 'typical' maturity, many continue to struggle with impairments throughout their lives (Howlin, Goode, Hutton, & Rutter, 2004; Lovaas, 1987; Rogers, 1998), and those individuals with significant impairments are often cared for over the long-term in group homes (VanBourgondien, Reichle, & Schopler, 2003). Studies evaluating early childhood prognostic indicators of successful future functioning of individuals with ASD have revealed that better outcomes are dependent on intelligence scores greater than a standard score of 50 and language attainment by age 6 years (Gillberg & Steffenburg, 1987; Lockyer & Rutter, 1969; Lord & Bailey, 2002; Lotter, 1974).

There are consistent findings in the literature that individuals with autism generally have markedly higher intelligence levels compared to levels of adaptive functioning, particularly in those individuals with higher intelligence (Bolic & Pousika, 2002; Bryson & Smith, 1998; Lockyer & Rutter, 1969; Rumsey, Rapoport, & Sceery, 1985). This pattern appears to be unique to the autism population, as studies have demonstrated that individuals with autism compared with matched control individuals have inconsistent and lower adaptive behavior scores as measured by the Vineland Adaptive Behavior Scales (VABS) (Burack & Volkmar, 1992; Gillham, Carter, Volkmar, & Sparrow, 2000; Lord et al., 1989). Individuals with autism also have less of an increase in certain adaptive functioning domains (i.e., socialization and daily living skills) over time (Schatz & Hamdan-Allen, 1995). Therefore, questions remain regarding the possible added interference of ASD symptoms on the adaptive social, communication, and daily living skill development in children with autism, regardless of intelligence level. For example, a cross-sectional study of adolescents and young adults with Autistic Disorder or Down syndrome found that adaptive skills increased with age in the Down syndrome group, but not in the autism group, even though the groups were matched on language development (Loveland & Kelley, 1988). Burack and Volkmar (1992) found that children with autism have uneven adaptive profiles, as measured by the VABS, with the lowest scores in socialization and to a lesser degree, low scores in communication compared with mental age (MA) and chronological age (CA) matched control children. Additionally, studies have reported that children with autism have substantially lower adaptive socialization scores than do non-autistic developmentally delayed (DD) children, as assessed by the VABS (Gillham et al., 2000). Lord and Schopler (1989) have also demonstrated that children and adults with autism have considerably lower adaptive behavior scores compared to CA and IQ matched non-autistic controls. However, a more recent study (Fenton et al., 2003) of 23 children with autism ages 21–100 months with a mean MA of 15.4 months compared to 27 non-autistic DD matched controls found only slightly lower adaptive standard scores in all domains measured by the VABS compared to the DD group. Nonetheless, when examining the subdomain scores of the VABS Socialization domain (i.e. Play and Leisure), these items did significantly differentiate the autism group (more impaired) from the matched control group. The Play and Leisure subdomain items included play with and interest in others and using objects for pretend play, skills more related to the diagnostic social and communication impairments in children with autism.

Level of adaptive functioning rather than academic achievement has been identified as an important factor influencing the individual's ability to be placed in higher levels of education

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