Title: The Diagnostic Stability of Autism Spectrum Disorder in Young Children with Diverse Backgrounds

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Introduction: Autism spectrum disorder (ASD) is typically considered to be a lifelong neurodevelopmental disorder and a great deal of research supports the stability of the diagnosis over time (e.g., Chawarska et al., 2007; Eaves & Ho, 2004; Wiggins et al., 2012). However, recent studies have reported a small subset of children, referred to as the “optimal outcome” group, who are diagnosed in early childhood, show improvement over time, and ultimately do not meet criteria for the diagnosis at follow up (e.g., Fein et al., 2013; Kleinman et al., 2008; Ozonoff et al., 2015). The question of diagnostic stability of ASD has become an increasingly active focus of research and is relevant to scientific and clinical issues regarding prevalence, utility of early intervention, families’ experience of the diagnosis, and developmental trajectories of ASD symptoms (e.g., Cox et al., 1999; Lord & Bishop, 2010; Woolfenden et al., 2012). Prior research on the diagnostic stability of ASD has been constrained by small and homogenous samples, short follow up time periods, and inconsistent diagnostic procedures (i.e., lack of gold-standard diagnostic tools, use of outdated diagnostic criteria), thus limiting the generalizability of findings.

Method: In the current study we conducted follow up evaluations of 60 children (86.7% male, mean age = 51.3 months) who received initial ASD diagnoses before 36 months of age, with variability in age at initial diagnosis (mean age = 27.7 months) as well as duration of interval between initial diagnosis and follow up evaluation (mean interval = 23.7 months). Children received between 2.7 and 52.0 hours of early intervention services per week (mean = 16.7 hours), including general and specialty services, between their initial diagnosis and third birthday. Participants and families in this study represent a diverse sample with regard to race/ethnicity (79.7% identified as racial/ethnic minorities), annual household income (61.7% of families received government financial assistance within the last year), parental education status (59.3% of primary parents did not graduate from college), and parental employment status (39.0% of primary parents were not employed at the time of follow up evaluation). Initial and follow up evaluations consisted of a gold-standard behavioral diagnostic measure (Autism Diagnostic Observation Schedule-2; ADOS-2) administered by a research-reliable assessor, developmental/cognitive testing (Mullen Scales of Early Learning or Differential Ability Scales-II), and caregiver interviews.

Results: Follow up evaluations determined that seven children (11.7% of sample) no longer met DSM-5 diagnostic criteria for ASD. Paired t-tests revealed that on average, children demonstrated significantly improved cognitive abilities as well as significantly decreased ASD symptom severity (as measured by scores on the ADOS-2) at follow up. The effect sizes for t-tests comparing children’s initial and follow up cognitive performance ranged from small to medium, with children making the most gains in fine motor skills ($d=.683$). The effect size for the t-test comparing ASD severity at initial and follow up evaluations ($d=.897$) was found to exceed Cohen’s (1988) convention for a large effect. A multiple linear regression revealed that initial symptom severity ($\beta = .328, p<.01$), age at diagnosis ($\beta = -.490, p<.01$), and time interval between evaluations ($\beta = -3.73, p<.01$) were significant predictors of ASD severity at follow up evaluation; whereas cognitive functioning at initial diagnosis was not related to ASD severity at follow up ($\beta = .004, p>.05$).

In addition, independent samples t-tests as well as ANOVAs were calculated to determine if child/family demographic factors were related to a child’s ASD severity at follow up. T-tests showed that ASD severity at follow up did not differ significantly by child’s race or child’s Latino/Hispanic ethnicity – analyses yielded small to medium effect sizes. Similarly, ANOVAs demonstrated that ASD severity at follow up did not differ significantly by a family’s household income, primary parental job status, or primary parental education status (i.e., highest grade completed).


**Discussion:** Findings from this study suggest that ASD diagnoses assigned in early childhood are valid and likely to be retained over a 1-3 year period, thus, evidence-based intervention should be initiated as early as possible. This information can aid clinicians in difficult discussions with families regarding the stability of early-assigned ASD diagnoses, and provide families with additional information about the possible trajectory of disorder that is often perceived as overwhelming, confusing, and anxiety-producing (Wachtel & Carter, 2008). Future studies should aim to follow children for longer periods of time, including across developmental stages that require increasingly complex social skills. Studies with such parameters would allow researchers to carefully document the trajectories of ASD symptoms over an extended period of time, thus providing clinically useful information to both families and interventionists (i.e., for treatment-planning).

**References/Citations:**