A Longitudinal Study of Children with Early ASD Diagnoses: Prediction from Early Developmental Scores, Age at Early Diagnosis, and Amount of Intervention

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Background
Research has indicated positive short term outcomes of EI for children with ASD; however, less is known regarding long term outcomes for children who have received EI. As the overall goal of EI for children with ASD is to promote long-term improvement, it is beneficial to evaluate these children from age of diagnosis through school-age. In this longitudinal study, we examined the effects of predictor variables such as age of diagnosis, amount of EI, and early developmental scores on the long-term outcomes for children with ASD, in particular, their educational settings in terms of level of support needed.

Study Goals
1. Examine diagnostic stability of ASD diagnoses from Time 1 to Time 2
2. Examine prediction from Time 1 cognitive scores, age of starting EI, and hours of EI at Time 2 educational setting.

Method
Participants
70 children who received early intervention evaluations and/or service coordination at WHID and through a chart abstraction coding system diagnosed with ASD before the age of 3 years old. (Time 1). The same children were re-evaluated at age 7-18 years old. (Time 2)

Demographics of Participants
- Age at Time 1: Mean 25.5 mos (15 – 36 mos), SD 5.2 mos
- Age at Time 2: Mean 10.5 yrs (7 – 18 yrs), SD 2.3 yrs
- Gender: Male – 60 (86%) Female – 10 (14%)

Instruments
Time 1: Demographic, Vineland Adaptive Behavior Scales
Time 2: Parent Questionnaire, Vineland Adaptive Behavior Scales and Gilliam Autism Rating Scale (GARS), Educational Setting Classifications

Procedure
Parents were contacted about participation in the study. Packets including consent form and questionnaires were mailed out. Upon return of materials, phone calls were to administer the Vineland scales. All instruments were scored and entered into the database using Statistical Package for the Social Sciences to conduct planned analysis.

Results
Goal 1: Diagnostic Stability and Educational Setting
Do Children Diagnosed Early Retain Their ASD Diagnosis?

Three diagnostic categories at Time 2 were developed based on parent report of: current functioning, social skills, GARS scores, learning difficulties, and special education services. The participants were then placed into one of ASD and Disability categories.

Educational Settings at Time 2

Levels of support ranging from regular school classroom to residential special education:
- Public Classroom w/ 0-1 services
- Regular Private School, no services
- Public School Classroom with 2 or more services
- Special Education Classroom
- Special Education

These above levels were consolidated into 3 groups: Low, Medium and High restriction.

Educational Setting Level at Time 2

- ASD with Mod-Severe Disability
- ASD with Mild Disability
- No ASD Dx

- High (4-6)
- Medium (3)
- Low (1-2)

A little over half the children were in the most severe category, about one-quarter were milder, and 17% did not retain an ASD diagnosis.

Autism and Adaptive Scores for Each Level Across Time 2 Diagnoses at School Age

- ASD with Mod-Severe Disability
- ASD with Mild Disability
- No ASD Dx

Adaptive behavior (VABS) and autism severity scores (GARS) supported the diagnostic categories.

Educational Settings at Time 2

Levels of support ranging from regular school classroom to residential special education:
- 1. Public Classroom w/ 0-1 services
- 2. Regular Private School, no services
- 3. Public School Classroom with 2 or more services
- 4. Segregated Special Education Classroom
- 5. Special Education School
- 6. Residential Special Education

These above levels were consolidated into 3 groups: Low, Medium and High restriction.

Educational Level at Time 2

- ASD with Mod-Severe Disability
- ASD with Mild Disability
- No ASD Dx

- High (4-6)
- Medium (3)
- Low (1-2)

The differential distribution of diagnostic groups across the settings is statistically significant.

Goal 2: Prediction From Time 1 to Time 2-Whole Group
A. Early Cognitive Scores, Age at Starting Intervention, and Amount of Early Intervention Across Educational Setting (Restrictive vs. Inclusive) Groups

- Time 1 Cognitive Scores
- Age ASD recognition
- Total Hours EI

High Rest
Mean N 68.74 ± 30 25.6 673.43

Med
Mean N 83.8 ± 36 26.1 606.57

Low
Mean N 91.0 ± 13 25.0 615.99

The mean Time 1 Cognitive Scores was the only Time 1 variable that differed significantly among the three Educational Setting groups.

Discussion
Results suggest that early intellectual level, measured by or before three years of age, is one of the strongest predictors of how much educational support a child will need at school age. However, within subgroups of children in terms of their diagnostic status and adaptive functioning level, there are important differences. The ASD with Mild Disability group appeared to be more responsive to the amount of EI therapies they received, which made an important difference in their future educational settings (i.e., restrictive vs. inclusive).

B. Correlations Between Time 1 Variables and Time 2 Educational Setting-Individual Diagnostic Group

- ASD Severity at Time 2
- Age ASD
- Age Start
- Therapy
- Hours Total
- Speech Total

There was a trend for children with higher cognitive scores at Time 1 to be in less restrictive settings at Time 2. No other predictions were significant.