



A Longitudinal Study of Children with Early ASD Diagnoses: Prediction from Early Developmental Scores, Age at Diagnosis, and Amount of Early 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 to Time 2 educational setting.

Method

Participants

70 children who received early intervention evaluations and/or service coordination at WIHD 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

	Mean	Range	SD
Age at Time 1	25.5 mos	15 – 36 mos	5.2 mos
Age at Time 2	10.5 yrs	7 – 18 yrs	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 a took place 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.

ASD Severity at Time 2

ASD with Mod-Severe Disability	ASD with Mild Disability	No ASD Dx
N - 40	N - 18	N - 12
57%	26.0%	17%

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
T2 VABS	Mean	61.83	80.85	104.60
	N	23	13	10
T2 GARS	Mean	94.61	70.85	54.60
	N	36	20	10

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.

Restrictive Level at Time 2	ASD with Mod-Severe Disability N %	ASD with Mild Disability N %	No ASD Dx N %
High (4-6)	35 90	8 47	1 8
Medium (3)	4 10	8 47	3 25
Low (1-2)	0 0	1 6	8 67

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 2 Educational Setting	Time 1		
	Cognitive Scores	Age ASD recogn	Total Hours EI
High Restr	Mean 68.7 ^a ** N 39	25.6 35	673.43 43
Med	Mean 83.8 ^b N 13	26.1 9	606.57 9
Low Restr	Mean 91.0 ^b N 8	25.0 15	615.99 14

The mean Time 1 Cognitive Scores was the only Time 1 variable that differed significantly among the three Educational Setting groups. * $p < .05$ ** $p < .01$. Note. For cognitive scores, means with the same superscript are not significantly different from each other.

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

CHILDREN WITH ASD AND MOD-SEVERE DISABILITY						
	Time 1 Cog Level	Age ASD ID	Age Start ABA	Age Start any Therapy	Total Hours ABA	Total Hours Speech
Current Educational Setting (Higher is more restrictive)	r -.31*	.07	-.11	-.07	.22	-.04
	p .06	.67	.59	.68	.18	.81
	N 38	39	26	35	38	36

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

CHILDREN WITH ASD AND MILD DISABILITY						
	Time 1 Cog Level	Age ASD ID	Age Start ABA	Age Start any Therapy	Total Hours ABA	Total Hours Speech
Current Educational Setting (Higher is more restrictive)	r -.24	.45*	.53*	.17	-.61*	-.43*
	p .20	.07	.09	.55	.01	.09
	N 16	17	11	15	17	17

There was a trend for children who were older when ASD was recognized, started ABA later, and had fewer hours of speech therapy to be in more restrictive settings at Time 2. More hours of ABA was significantly associated with less restrictive settings at Time 2.

CHILDREN WITH NO ASD						
	Time 1 Cog Level	Age ASD ID	Age Start ABA	Age Start any Therapy	Total Hours ABA	Total Hours Speech
Current Educational Setting (Higher is more restrictive)	r -.72*	.19	-.06	-.69*	.12	.44
	p .01	.55	.89	.01	.71	.15
	N 12	12	6	12	12	12

Higher cognitive scores at Time 1 and starting any therapy later was significantly associated with less restrictive settings at Time 2. No other predictors were significant.

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 v. inclusive).

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