Prediction of the Status of Low-Income Fifth Graders by Early Disability Indicators: Early Head Start Research and Evaluation Study

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Background

- High proportion of children in Early Head Start (EHS) Project identified as having developmental risks and disabilities (Peterson et al., 2004; Peterson et al., in press)
- Negative relationship between poverty & children's school readiness (Jeon et al., 2011)
- Lack of longitudinal studies on school outcomes for low-income children early identified as having developmental risks and chronic health problems

Purpose

- To predict IEP status, academic, and social-emotional competencies at age 10 for children identified as having developmental risks by age 3 and 5

Participants

Participants were in the EHS 5th-Grade Follow-up Study examining long-term impacts of EHS on outcomes for children and families and exploring children's and families experiences after the program (*N* = 1632)

- 50.7% Boys; 49.3% Girls
- 34.6% white; 33.9% African American; 20.4% Latino; 9.9% Others
- Maternal education: 19.2% less than HS; 21.8% HS; 25.9% some college; 17% AA or BA
- Numbers of children with disability indicators

Disability indicator	Age 3	Age 5
Received Part C/B services	82	277
Suspected developmental delay & biological risk	267	167
Suspected developmental delay	207	262
Biological risk	538	251
No developmental risk	468	555

Measures & Analysis Plan

Measures

- Peabody Picture Vocabulary Test-3rd ed. (PPVT-III)
- Wechsler Intelligence Scale for Children (WISC-IV): Matrix Reasoning
- ECLS-K (Language/Literacy; Math Routing)
- Child Behavior Checklist (Achenbach, 1991; CBCL)

Using SAS package

- MI (Proc MI)
- Logistic Regression
- General Linear Modeling (Proc GLM)
- MIANALYZE (Proc Mianalyze)

Results

Table 1. Logistic Regression Analysis for Low-income Children's IEP Status at Age 10 Predicted by Early Disability Indicators and Other Covaria

Variable	*B*	*SE B*	*OR*	*95% CI*
By Age 3 (no disability indicator1)				
Part C received	1.38***	.32	3.64	1.99 – 6.66
Suspected dev delay & biological risk	0.30	.24	1.27	0.80 – 2.03
Suspected dev delay	0.40	.26	1.33	0.82 – 2.17
Biological risk	0.08	.21	1.05	0.71 – 1.57
By age 5 (no disability indicator1)				
Part B received	1.53***	.22	4.90	3.21 – 7.47
Suspected dev delay & biological risk	0.55*	.26	1.64	0.99 – 2.70
Suspected dev delay	0.36	.24	1.54	0.98 – 2.43
Biological risk	-0.03	.26	0.92	0.55 – 1.53
Covariate				
Gender (boys)	0.32*	.15	1.39	1.04 – 1.87
Minority (non-white)	-0.19	.20	0.81	0.54 – 1.21
EHS	-0.04	.15	0.96	0.72 – 1.28
Mother education	-	.03	1.00	0.95 – 1.06
Family income	-0.09+	.05	0.91	0.83 – 1.00
Parent CES-D	0.01	.01	1.01	0.99 – 1.03
HOME	-0.01	.01	0.99	0.98 – 1.01

Note.+ p < .10. * P < .05. *** p < .001

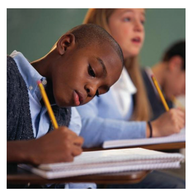

Table 2. Low-income Children's Academic Competencies at age 10 Predicted by Earlier Disability Indicators after Controlling for Other Covariates

Variable	PPVT-III *B (SE)*	ECLS-K Language/ Literacy *B (SE)*	ECLS-K Math Routing *B (SE)*	WISC Matrix Reasoning *B (SE)*
By age 3				
Part C received	-13.11 (2.93)***	-18.49 (4.22)***	-2.13 (0.63)***	-1.98 (0.51)***
Suspected dev delay & biological risk	-3.65 (1.78)*	-8.00 (2.56)**	-1.20 (0.38)**	-0.82 (0.31)**
Suspected dev delay	-5.81 (1.88)**	-10.56 (2.93)***	-0.93 (0.39)*	-0.53 (0.32)+
Biological risk	-1.13 (1.40)	-3.22 (2.03)	-0.43 (0.30)	-0.49 (0.24)*
By age 5				
Part B received	-3.77 (1.86)*	-14.49 (2.63)***	-1.27 (0.38)*	-0.97 (0.32)**
Suspected dev delay & biological risk	-1.63 (2.04)	-5.38 (3.05)+	-0.60 (0.44)	-0.19 (0.38)
Suspected dev delay	0.12 (1.67)	-5.75 (2.39)*	-0.75 (0.36)*	-0.04 (0.30)
Biological risk	1.19 (1.68)	3.06 (2.41)	0.42 (0.35)	0.02 (0.29)
Gender (boys)	2.66 (0.88)**	-0.83 (1.28)	0.80 (0.19)***	0.11 (0.15)
Minority	-3.67 (1.56)*	-1.78 (2.26)	-0.95 (0.33)**	0.15 (0.27)
EHS	0.46 (1.09)	1.95 (1.60)	-0.16 (0.23)	0.19 (0.19)
Mother education	-0.12 (0.19)	0.30 (0.28)	0.13 (0.02)	0.02 (0.03)
Family income	0.34 (0.34)	0.63 (0.49)	0.13 (0.07)+	0.04 (0.06)
Parent CES-D	0.14 (0.08)	0.01 (0.12)	-0.03 (0.02)	0.02 (0.01)+
HOME	1.62 (0.06)***	2.29 (0.09)***	0.26 (0.01)***	0.23 (0.01)***

Note.+ p < .10. * P < .05. ** p < .01. *** p < .001

Results (continued)

Table 3. Low-income Children's Social-emotional Competencies at age 10 Predicted by Earlier Disability Indicators after Controlling for Other Covariates

Variable	CBCL Externalized behavior *B (SE)*	CBCL Internalized behavior *B (SE)*	CBCL Aggressive behavior *B (SE)*	CBCL Anxiety *B (SE)*	CBCL Attention problem *B (SE)*
By Age 3					
Part C received	2.49 (0.96)**	1.88 (0.70)**	1.97 (0.69)**	0.76 (0.39)+	1.34 (0.46)**
Suspected dev delay & biological risk	0.86 (0.59)	0.41 (0.41)	0.51 (0.42)	0.19 (0.23)	0.76 (0.28)**
Suspected dev delay	-0.52 (0.60)	0.47 (0.44)	-0.41 (0.44)	0.22 (0.24)	0.01 (0.29)
Biological risk	0.40 (0.46)	0.33 (0.33)	0.22 (0.33)	0.04 (0.19)	0.10 (0.22)
By age 5					
Part B received	2.37 (0.60)***	1.44 (0.44)**	1.73 (0.43)***	0.58 (0.24)*	1.81 (0.28)***
Suspected dev delay & biological risk	2.60 (0.64)***	1.57 (0.46)***	1.86 (0.46)***	0.72 (0.25)**	0.89 (0.31)**
Suspected dev delay	1.48 (0.55)**	1.01 (0.40)*	1.22 (0.39)**	0.39 (0.22)+	0.88 (0.26) ***
Biological risk	-0.57 (0.54)		0.31 (0.39)	-0.22 (0.22)	-0.36 (0.25)
Gender (boys)	1.42 (0.29)***	0.28 (0.21)	0.92 (0.39)***	0.22 (0.12)+	1.00 (0.14)***
Minority	-1.52 (0.51)**	-0.67 (0.37)+	-1.08 (0.37)**	-0.66 (0.20)**	-0.91 (0.24)***
EHS	-0.22 (0.36)	-	-0.07 (0.26)	-0.05 (0.04)	-0.12 (0.17)
Mother education	-0.04 (0.06)	0.02 (0.04)	0.01 (0.04)	0.02 (0.02)	-0.01 (0.03)
Family income	-0.01 (0.11)	0.01 (0.08)	0.01 (0.08)	0.05 (0.40)	0.12 (0.05)*
Parent CES-D	0.39 (0.03)***	0.35 (0.02)***	0.29 (0.02)***	0.18 (0.01)***	0.16 (0.01)***
HOME	-0.01 (0.02)	0.01 (0.01)	-0.01 (0.01)	0.01 (0.01)	0.01 (0.01)

Note.+ p < .10. * P < .05. ** p < .01. *** p < .001

Conclusions

- Children who received Part C services, who received B services, and who were identified as having suspected developmental delay and biological risks by age 5 were more likely to have IEP at age 10 than those who did not have early disability indicators.
- Children who received Part C services, who were identified as having suspected developmental delay by age 3, and who received Part B services had lower academic competencies at age 10 than those who did not have early disability indicators.
- Children who received Part C services, who received B services, and who had suspected developmental delay and biological risks by age 5 had lower social-emotional competencies at age 10 than those who did not have disability indicators.
- This study suggests early intervention service and support for low-income families and children identified as having developmental risks