

Bidirectional associations between adjustment and academic achievement: Testing the adjustment erosion and academic incompetence hypotheses

Abigail Stover

Advisor: Jackson A. Goodnight, Ph.D.



OBJECTIVE

To examine the potential bidirectional, longitudinal pathways between externalizing problems, internalizing problems, and academic performance while controlling for potential confounding variables: family income, maternal IQ, maternal delinquency, mother's highest grade, maternal age at birth, biological sex of the child, and age 5-6 versions of the outcomes variables.

INTRODUCTION

Externalizing behavior problems predict academic performance consistently over time, but internalizing behavior problems do not have the same effect (Van der Ende et al., 2016). Academic performance does not predict internalizing behavior problems (Halpern-Manners et al., 2016). Externalizing problems directly predict academic performance, but internalizing problems are predicted by difficulties in academic performance (Wallin et al., 2019). The objective of the present study was to examine the potential bidirectional pathways between externalizing problems, internalizing problems, and academic performance while controlling for potential confounding variables.

METHOD

Children of the National Longitudinal Survey (CNLSY) sample consisted of 1,099 children, with 233 of these children being Hispanic, 352 Black, and 514 White. As part of the CNLSY, the Behavior Problem Index (BPI) scores behavior problems, with 7 of the 28 questions referring to internalizing problems and 17 referring to externalizing problems. 3 of the 28 items refer to both types of problems. The BPI was completed by the mothers of the participants. The CNLSY also contains the Peabody Individual Achievement Test (PIAT), which assesses math and reading. Each test consisted of 84 questions that became progressively more difficult for the child. This data was collected at the ages of 5-6 and 13-14. Multiple regression analyses controlled for family income, maternal delinquency, mother's highest grade, maternal age at birth, biological sex of the child, and age 5-6 versions of the outcome variables.

RESULTS

Math 13-14 (Table 1)

- Math 5-6 was positively associated with math achievement at ages 13-14.
- Externalizing 5-6 was negatively associated with math achievement at ages 13-14.
- Internalizing 5-6 was negatively associated with math achievement at ages 13-14.
- Maternal highest grade and maternal age were positively associated with math achievement at ages 13-14, and boys scored higher than girls on math achievement at ages 13-14.

Reading 13-14 (Table 1)

- Reading 5-6 was positively associated with reading achievement at ages 13-14.
- Externalizing 5-6 was negatively associated with reading achievement at ages 13-14.
- Internalizing 5-6 was negatively associated with reading achievement at ages 13-14.
- Maternal highest grade and maternal age were positively associated with reading achievement at ages 13-14.

Externalizing 13-14 (Table 2)

- Externalizing 5-6 was positively associated with externalizing scores at ages 13-14.
- Math 5-6 was negatively associated with externalizing scores at ages 13-14.
- Reading 5-6 was negatively associated with externalizing scores at ages 13-14.
- Maternal delinquency was positively associated with externalizing scores at ages 13-14.

Internalizing 13-14 (Table 2)

- Internalizing 5-6 was positively associated with internalizing scores at ages 13-14.
- Math 5-6 was negatively associated with internalizing scores at ages 13-14.
- Reading 5-6 was negatively associated with internalizing scores at ages 13-14.
- Girls scored higher than boys on internalizing scores at age 13-14.

DISCUSSION

These findings support both the adjustment erosion hypothesis and the academic incompetence hypothesis. The adjustment erosion hypothesis states that internalizing and externalizing problems reduce later academic achievement and makes the individual more likely to develop more disorders. The academic incompetence hypothesis states that low achievement in math and reading can trigger mental health issues. These findings suggest that interventions that target early adjustment problems could aid future academic achievement, and that interventions that target academic problems could aid future adjustment.

Table 1. Associations of externalizing problems, internalizing problems, math and reading at ages 5-6 with math and reading at age 13-14.

Predictors	MATH 13-14		MATH 13-14		READ 13-14		READ 13-14	
	B	p	B	p	B	p	B	p
Ext 5-6	-3.417	<.001	--	--	-3.809	<.001	--	--
INT 5-6	--	--	-3.790	<.001	--	--	-5.156	<.001
MATH 5-6	.619	<.001	.620	<.001	--	--	--	--
READ 5-6	--	--	--	--	.563	<.001	.565	<.001
Mat. Dep	-.054	.081	-.054	.083	-.061	.084	-.055	.118
Mat. Del	.035	.852	.042	.826	-.070	.746	-.051	.816
Mat. High Grade	.722	<.001	.726	<.001	.901	<.001	.891	<.001
Mat Age	.414	<.001	.415	<.001	.409	<.001	.408	<.001
Child Sex	-2.404	<.001	-2.155	<.001	-.741	.241	-.473	.450
Fam. Income	2.26E-6	.550	2.58E-6	.495	-6.57E-7	.881	-2.01E-7	.963

Table 2. Associations of externalizing problems, internalizing problems, math and reading at ages 5-6 with externalizing and internalizing at age 13-14.

Predictors	EXT 13-14		EXT 13-14		INT 13-14		INT 13-14	
	B	p	B	p	B	p	B	p
Ext 5-6	.332	<.001	.343	<.001	--	--	--	--
INT 5-6	--	--	--	--	.265	<.001	.266	<.001
MATH 5-6	--	--	-.005	.003	--	--	-.005	.002
READ 5-6	-.005	.009	--	--	-.007	<.001	--	--
Mat. Dep	.006	<.001	.006	<.001	.006	<.001	.006	<.001
Mat. Del	.018	.005	.019	.003	.012	.037	.013	.026
Mat. High Grade	.001	.875	-.001	.892	.004	.291	.001	.821
Mat Age	-.001	.532	-.001	.634	.003	.088	.004	.041
Child Sex	-.004	.829	-.012	.490	.050	.004	.035	.036
. Income	-3.31E-7	.016	-3.04E-7	.017	-2.78E-7	.029	-2.58E-7	.029