

Mediating Paths from an Early Childhood Intervention to Child Maltreatment and Adult Crime

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Research Questions

- (1) Is participation in the Chicago Child-Parent Center Program (CPC) associated with reduced rates of child maltreatment and what mediating processes help to explain this relation?
- (2) Is CPC participation associated with lower rates of adult criminal activity by age 24, and, if so, what are the mediating processes that may lead to reduced offending?

Early Childhood Interventions & Child Maltreatment

- Primary Prevention
- Promising Programs
- The Chicago Child-Parent Centers

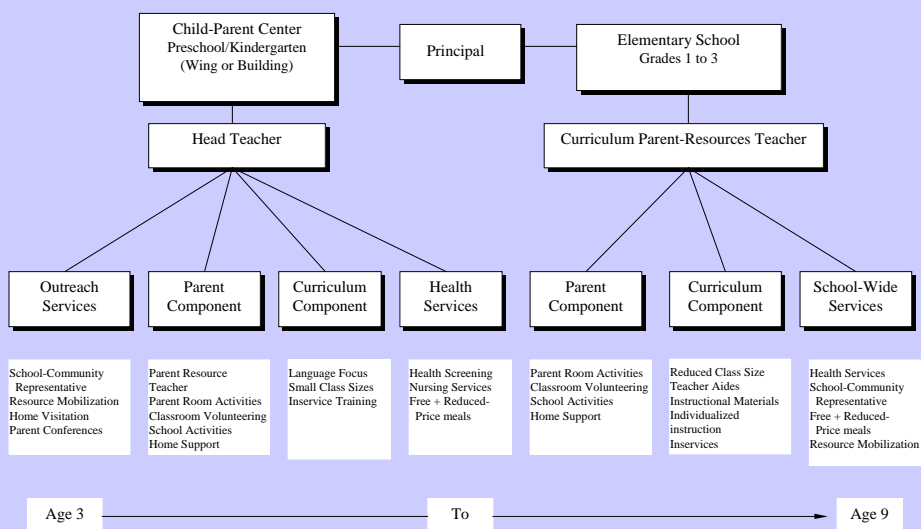
Early Childhood Interventions & Adult Crime

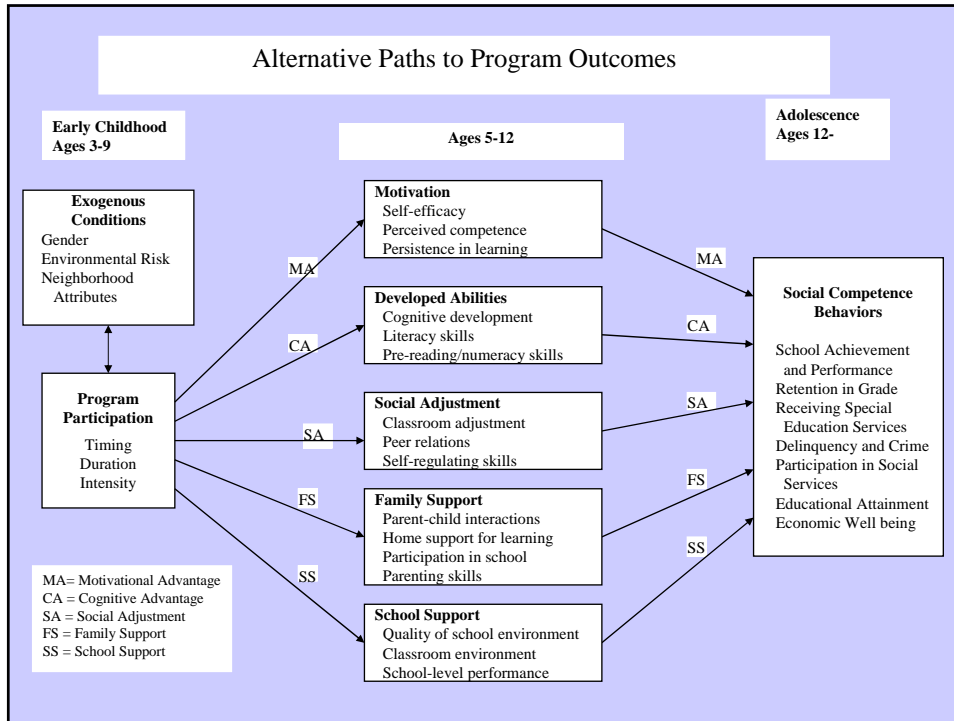
- Behavioral Impacts (+)
- Promising Programs
- Mediating Pathways

The CPC Program

- History
- Philosophy
- Program Components

CPC Diagram





The Chicago Longitudinal Study (CLS)

● Sample & Design

● Aims of the CLS

- ◆ Evaluate effects of the CPCs
- ◆ Identify subgroups of children who benefit most
- ◆ Identify mechanisms through which the CPC effects are achieved
- ◆ Determine the economic benefits of participation
- ◆ Investigate factors (modifiable) that impact children's well-being

Characteristics of the Original and Study Samples

Characteristics	Original Sample (N = 1,539)	Maltreatment Sample (N = 1,411)	Adult Crime Sample (N = 1,418)
African-American (%)	93.0	93.1	93.2
Female (%)	50.2	50.3	51.0*
Mother's age at child's birth (%)	22.6	22.6	22.7
Any family child welfare case history (%)	4.1	4.1	4.1
Cumulative risk index (0-8, Mean)	4.42	4.44*	4.42
Number of missing risks (0-8, Mean)	0.43	0.23*	0.32*
ITBS word analysis in K ¹ (Mean)	63.82	63.71	63.94

Note¹. *F* test statistic. All others are Pearson chi-square. Significance tests were conducted for each study sample and its corresponding attrition sample. * $p < .05$

Outcomes

(1) Child Maltreatment

- Any indicated¹ report, ages 4-17
- Any indicated report, ages 10-17

(2) Adult Crime

- Any adult incarceration by age 24
- Number of adult arrest convictions by age 24

¹In Illinois, substantiated reports are referred to as "indicated".

Measures (1)

COVARIATES	MEDIATORS
Race/Ethnicity	Word Analysis Scores, Kindergarten (WA)
Sex	Socio-emotional Maturity, Grades 1-3 (SM)
Cumulative Risk Index (0-8)*	Troublemaking Behavior, Grades 3-6 (TB)
Number of Missing Risks (0-8)	Parent Involvement in School, Grades 1-3 (PI)
Age of Mother at Child's Birth	Parent Involvement in School, Grades 4-6 (PI-2)
Family Child Welfare History by Age 3	School Commitment, Grades 3-4 (SC)
CPC school-age participation	Magnet School Attendance, Grades 4-8 (MAG)
	Number of School Moves, Grades 4-8 (MOB)

*The cumulative risk index sums eight sociodemographic risks measured dichotomously at or near the participating child's birth, including free lunch eligibility, public aid receipt (AFDC/TANF), parent not a high school graduate, parent not employed full- or part-time, single-parent family status, four or more children in the household, mother ever a teen parent (< age 18), and neighborhood poverty \geq 40%.

Measures (2)

COVARIATES	MEDIATORS
Race/Ethnicity	Word Analysis Scores, Kindergarten (WA)
Sex	ITBS Reading Scores, Grade 8 (RE)
Cumulative Risk Index (0-8)	High School Graduate (HS)
Number of Missing Risks (0-8)	Socio-emotional Maturity, Grades 1-3 (SM)
Age of Mother at Child's Birth	Acting Out Behavior, Grades 6-7 (AO)
Family Child Welfare History by Age 3	Any Official Delinquency Petition (JD)
CPC school-age participation	Parent Involvement in School, Grades 1-3 (PI)
	Any Substantiated Maltreatment, Ages 4-17 (CAN)
	School Commitment, Grades 3-4 (SC)
	School Commitment, Grades 5-6 (SC-2)
	Magnet School Attendance, Grades 4-8 (MAG)
	Number of School Moves, Grades 4-8 (MOB)

Data Analysis

- ◆ **Main Effects in STATA**
 - ◆ Probit Regression for Dichotomous Outcomes
(Any Substantiated Maltreatment; Any Incarceration)
 - ◆ Negative Binomial Regression for Count Data
(Number of Arrest Convictions)
- ◆ **Structural Equation Modeling in LISREL**

(1) Descriptive statistics for CPC preschool and comparison groups on mediators and outcomes (N=1,411)

Mediators	N	Range	Total Sample Mean	CPC Preschool	
				Any N=914	None N=497
ITBS word analysis in K ¹ (Mean)	1411	19 – 99	63.71	65.89*	59.71
Parent involvement, grades 1-3	1411	1 – 5	2.58	2.71*	2.34
Socio-emotional maturity, grades 1-3	1411	7 – 30	19.10	19.57*	18.24
School commitment, grades 3-4	1411	16 – 36	29.97	30.16*	29.62
Parent involvement, grades 4-6	1411	1 – 5	2.50	2.57*	2.36
Troublemaking behavior, grades 3-6	1411	-1.7 – 3.0	.03	-.02*	.12
Magnet school attendance, grades 4-8	1411	0 – 1	0.10	0.14*	0.04
Number of school moves, grades 4-8	1352	0 – 4	0.96	0.83*	1.19
Outcomes					
Any substantiated maltreatment, ages 4-17	1411	0 – 1	.13	.10*	.17
Any substantiated maltreatment, ages 10-17	1411	0 – 1	.08	.06*	.10

*p < .05

(2) Descriptive statistics for CPC preschool and comparison groups on mediators and outcomes (N=1,418)

Mediators	N	Range	Total Sample Mean	CPC Preschool	
				Any N= 918	None N=500
ITBS word analysis in K ¹ (Mean)	1418	19 – 99	63.94	66.04*	60.10
Parent involvement, grades 1-3	1418	1 – 5	2.58	2.71*	2.33
Socio-emotional maturity, grades 1-3	1418	7 – 30	19.15	19.60*	18.32
School commitment, grades 3-4	1418	16 – 36	30.01	30.21*	29.63
School commitment, grades 5-6	1418	18 – 40	31.58	31.76*	31.26
Acting out behavior, grades 6-7	1418	6 – 30	12.44	12.17*	12.93
Magnet school attendance, grades 4-8	1418	0 – 1	0.10	0.13*	0.04
Number of school moves, grades 4-8	1295	0 – 4	0.95	0.83*	1.19
ITBS reading scores, grade 8	1418	77 – 212	144.65	146.79*	140.72
Any substantiated maltreatment, ages 4-17	1341	0 – 1	.12	.09*	.16
High school graduate	1323	0 – 1	.52	.54*	.48
Any official delinquency petition	1338	0 – 1	.20	.17*	.25
Outcomes					
Any adult incarceration by age 24	1413	0 – 1	.17	.15*	.22
Number of arrest convictions by age 24	1418	0 – 9	0.52	0.44*	0.65

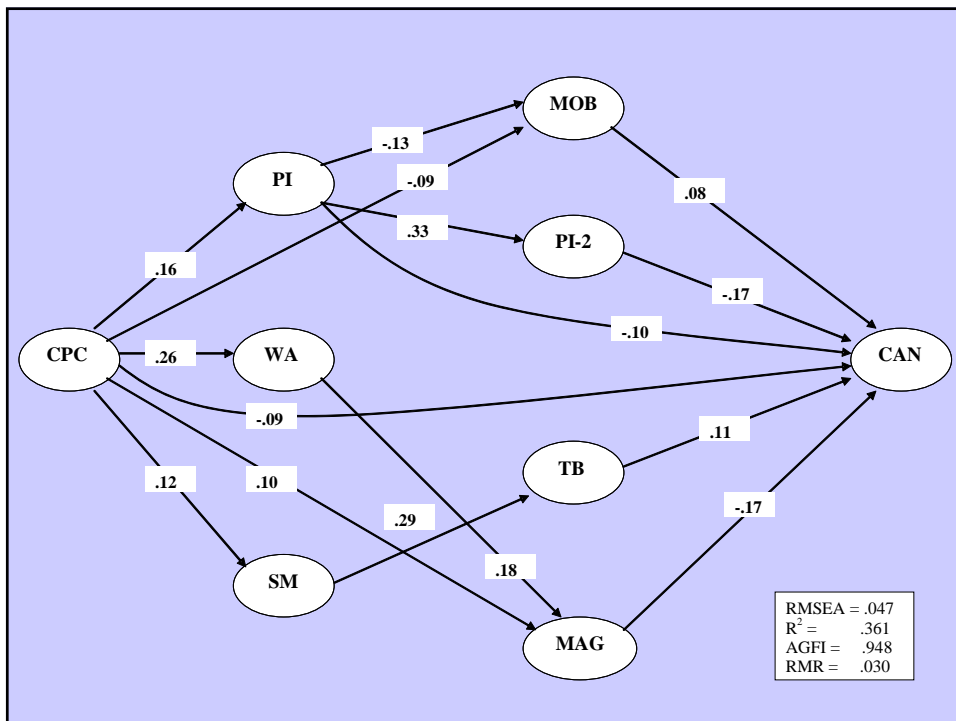
*p < .05

Adjusted Means and Differences for CPC Preschool on Indicated Maltreatment and Adult Crime

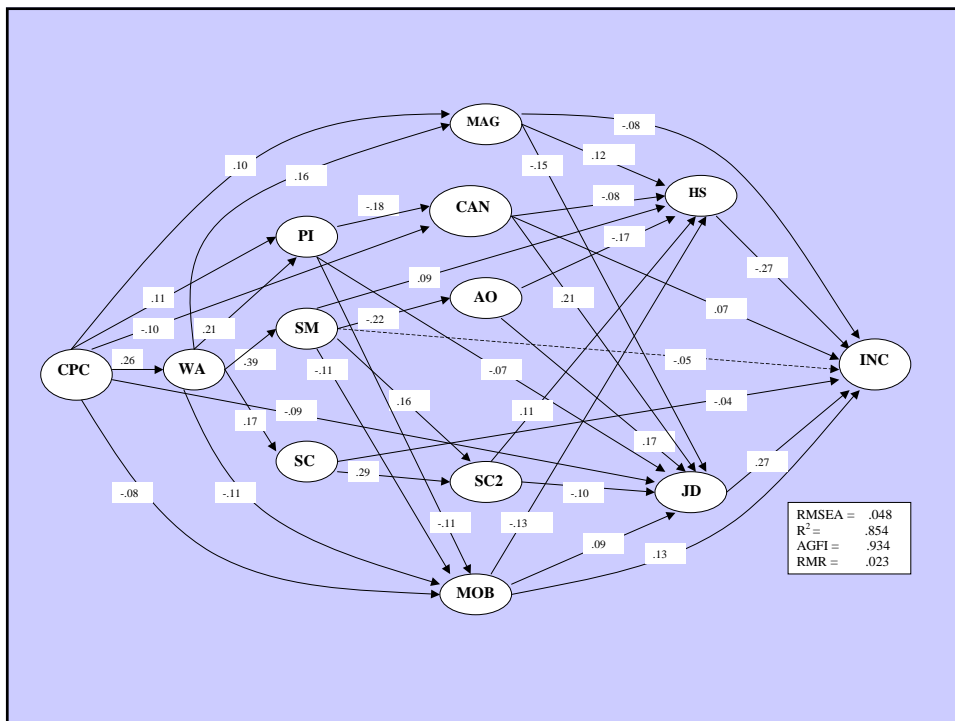
Outcome measure	N	CPC Preschool		Difference	p-value
		Any	None		
Maltreatment Indicators					
Any indicated maltreatment, ages 4-17, RI (%)	1411	.086	.140	-.054	.004
Any indicated maltreatment, ages 4-17, IR (%)	1411	.085	.138	-.053	.005
Any indicated maltreatment, ages 10-17, RI (%)	1411	.048	.086	-.038	.010
Any indicated maltreatment, ages 10-17, IR (%)	1411	.048	.082	-.034	.019
Crime Indicators					
Any incarceration, RI (%)	1413	.078	.124	-.046	.008
Any incarceration, IR (%)	1413	.075	.118	-.043	.012
N. of arrest convictions, RI (Mean)	1418	0.38	0.52	-0.14	.036
N. of arrest convictions, IR (Mean)	1418	0.38	0.48	-0.10	.122

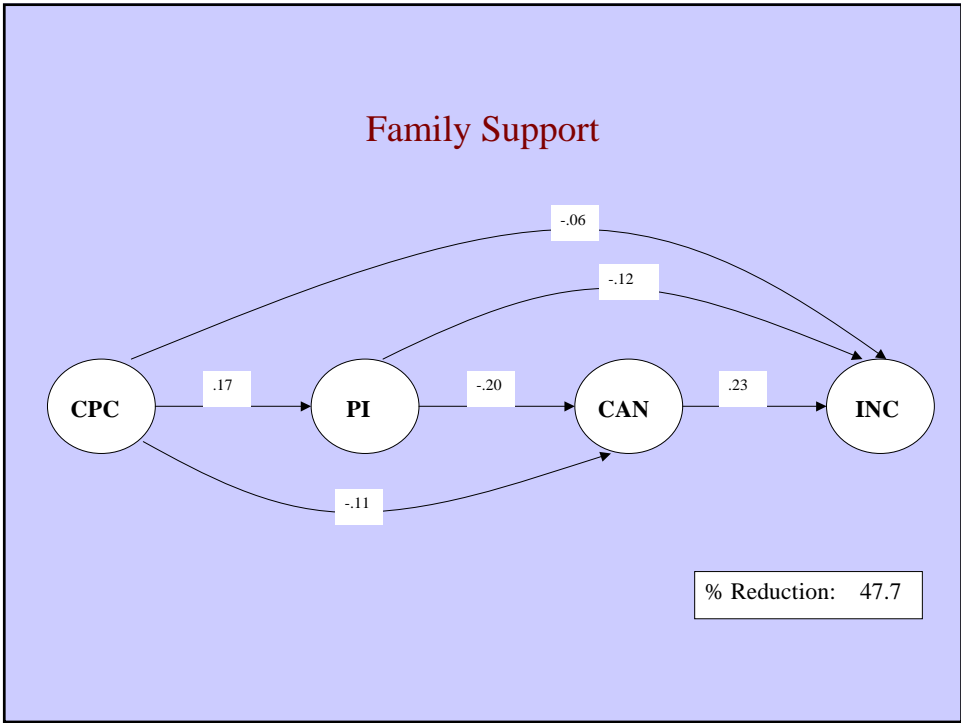
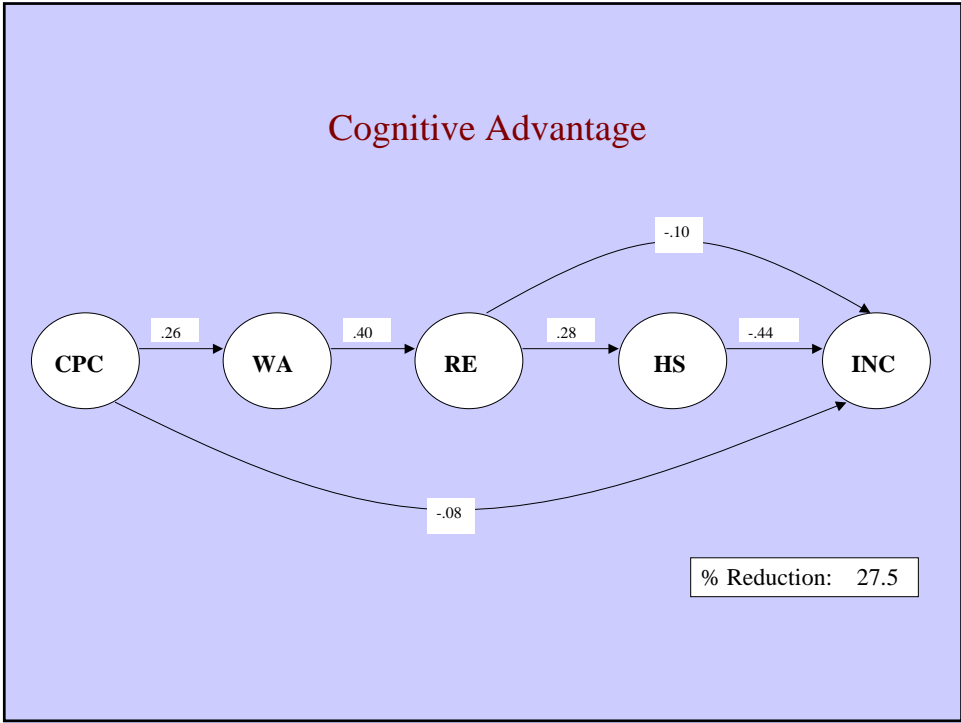
Note. Coefficients are obtained from adjusted probit regression analyses transformed to marginal effects. All models are adjusted for sex, race/ethnicity, age of mother at child's birth, family risk indicators, number of missing risk values (0-8), and CPC school-age participation. RI indicates adjustments for a cumulative risk index. IR indicates adjustments for the 8 independent family risks.

Mediation Model: CPC Effects on Child Maltreatment

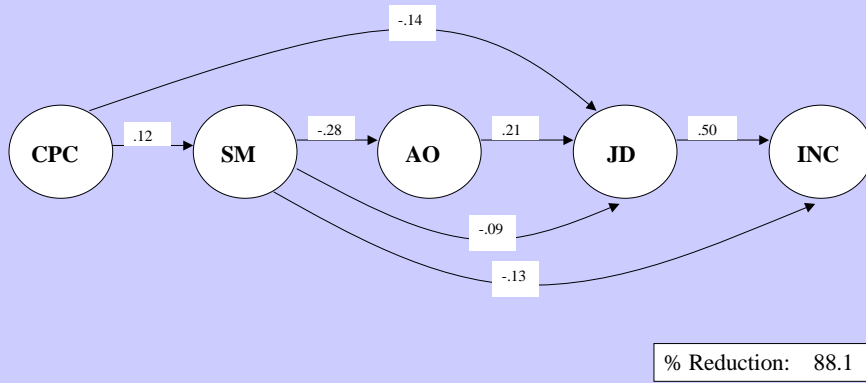


Mediation Model: CPC Effects on Adult Incarceration

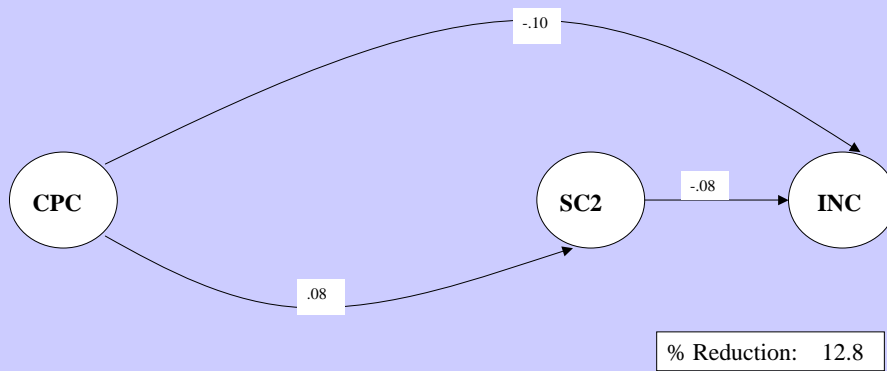




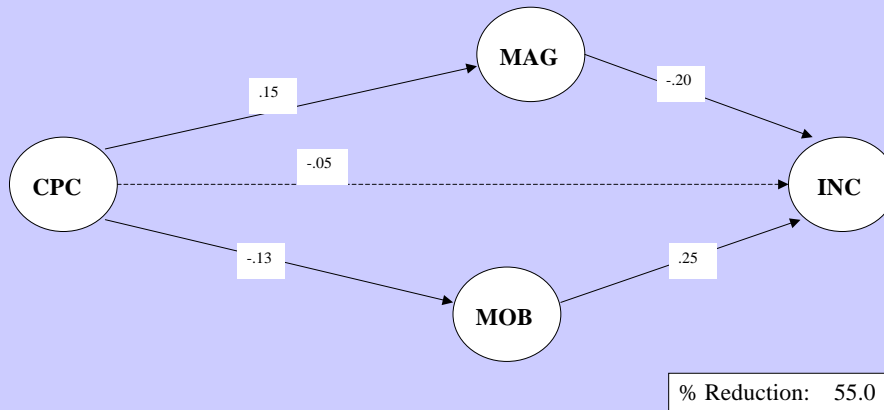
Social Adjustment



Motivational Advantage



School Support



Summary of Findings

- Main Effects
- Goodness-of-Fit
- Partial vs. Full Mediation
- Contributing Hypotheses

Limitations

(1) Maltreatment

(2) Adult Crime

➔ Omitted Variables

➔ Parsimony

➔ Bi-directional Effects

➔ Parameter Estimates

➔ Generalizability

➔ Generalizability

Implications

● Mechanisms of Change

● Tailoring Interventions

● Confirmatory Program Evaluation

Acknowledgments

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Goodness-of-Fit Statistics for Mediator Model Predicting Any Indicated Maltreatment, Age 4-17

Model	df	df	χ^2	χ^2	RMSEA	Std.	AGFI
		change		change		RMR	
Cumulative Model							
Main effect—full model (No Mediation)	79	--	1411.58	--	.109	.102	.796
Plus parent involvement, grades 1-3	76	3	1242.66	168.92	.104	.099	.811
Plus word analysis scores	73	3	1118.19	124.47	.101	.095	.821
Plus socio-emotional maturity	70	3	1036.74	81.45	.099	.093	.826
Plus parent involvement, grades 4-6	64	6	852.90	183.84	.093	.084	.841
Plus troublemaking behavior	59	5	782.91	69.99	.093	.079	.841
Plus motivation	54	5	615.18	167.73	.086	.070	.862
Plus magnet school	50	4	324.36	290.82	.062	.050	.919
Plus number of school moves	44	6	182.93	134.43	.047	.030	.948

Goodness-of-Fit Statistics for Mediator Model Predicting Any Adult Incarceration by Age 24

Model	df	df change	χ^2	χ^2 change	RMSEA	Std. RMR	AGFI
Cumulative Model							
Plus word analysis scores, kindergarten	119	3	3844.31	260.52	.149	.112	.602
Plus parent involvement, grades 1-3	115	4	3531.42	312.89	.145	.110	.615
Plus socio-emotional maturity, grades 1-3	112	3	3113.30	418.12	.138	.106	.643
Plus motivation, grades 3-4	108	4	2974.81	138.49	.137	.105	.643
Plus reading scores, grade 8	101	7	2446.84	527.97	.128	.094	.677
Plus acting out, grades 6-7	95	6	2218.23	228.61	.126	.090	.684
Plus school commitment, grades 5-6	89	6	1996.11	222.12	.123	.085	.693
Plus magnet school attendance, grades 4-8	83	6	1539.41	456.70	.111	.076	.739
Plus number of school moves, grades 4-8	76	7	1284.49	254.92	.106	.068	.758
Plus maltreatment, age 4-17	70	6	1042.24	242.25	.099	.064	.783
Plus high school graduation	61	9	696.13	346.11	.086	.046	.830
Plus juvenile delinquency	50	11	213.21	482.92	.023	.023	.934