



# Neighborhood environment and adverse childhood experiences (ACEs): the pathway for child development

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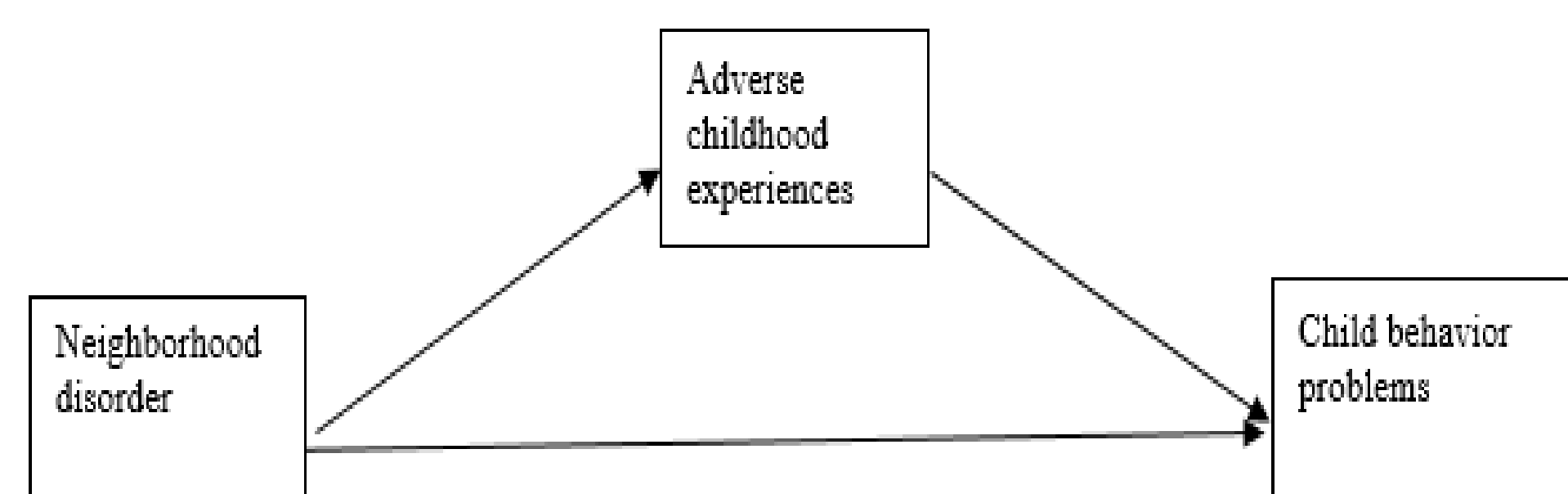
## INTRODUCTION

The Adverse Childhood Experiences study has significantly improved our understanding of the ways in which early experiences can affect children for the rest of their lives, with profound impacts shown on a variety of physical and behavioral health outcomes in adulthood. Strong evidence has been established for the dose-dependent association between ACEs and negative health and developmental outcomes. With every additional ACE, the risk of chronic diseases increases. In addition, compared with those with no ACE, people who report having ones are more likely to report health risk behaviors, such as alcohol use, smoking, drug use, and sexual risk behaviors. Mental health problems such as depression, hallucinations, schizophrenia, and suicidality are also higher in individuals with ACEs.

Newer research is examining the more immediate impact on child health and the impact of neighborhoods on the likelihood of experiencing adverse childhood experiences (ACEs). The extent to which all of these aspects of the child context fit together remains unclear.

The current study seeks to fill this gap using a comprehensive model to examine the ways in which neighborhood disorder and ACEs increase the likelihood of poor behavioral health outcomes for children.

Conceptual model



## METHODS

**Sample.** The data were obtained from the Fragile Families and Child Wellbeing Study (FFCW), a longitudinal birth cohort study conducted on 4898 children and their biological parents. Survey respondents were recruited in 20 large, urban cities across the United States. The study sample was limited to 3001 mother participants.

**Measures.** The key dependent variable was child's behavioral health at age 5 measured by CBCL. The key independent variable was neighborhood disorder measured by neighborhood disorder scale developed by Coulton and colleagues. The mediators was the child's score of adverse childhood experiences (ACEs) at age 3. The measures were created by summing 10 dichotomized categories of ACEs developed by Kaiser Permanente and Centers for Disease Control.

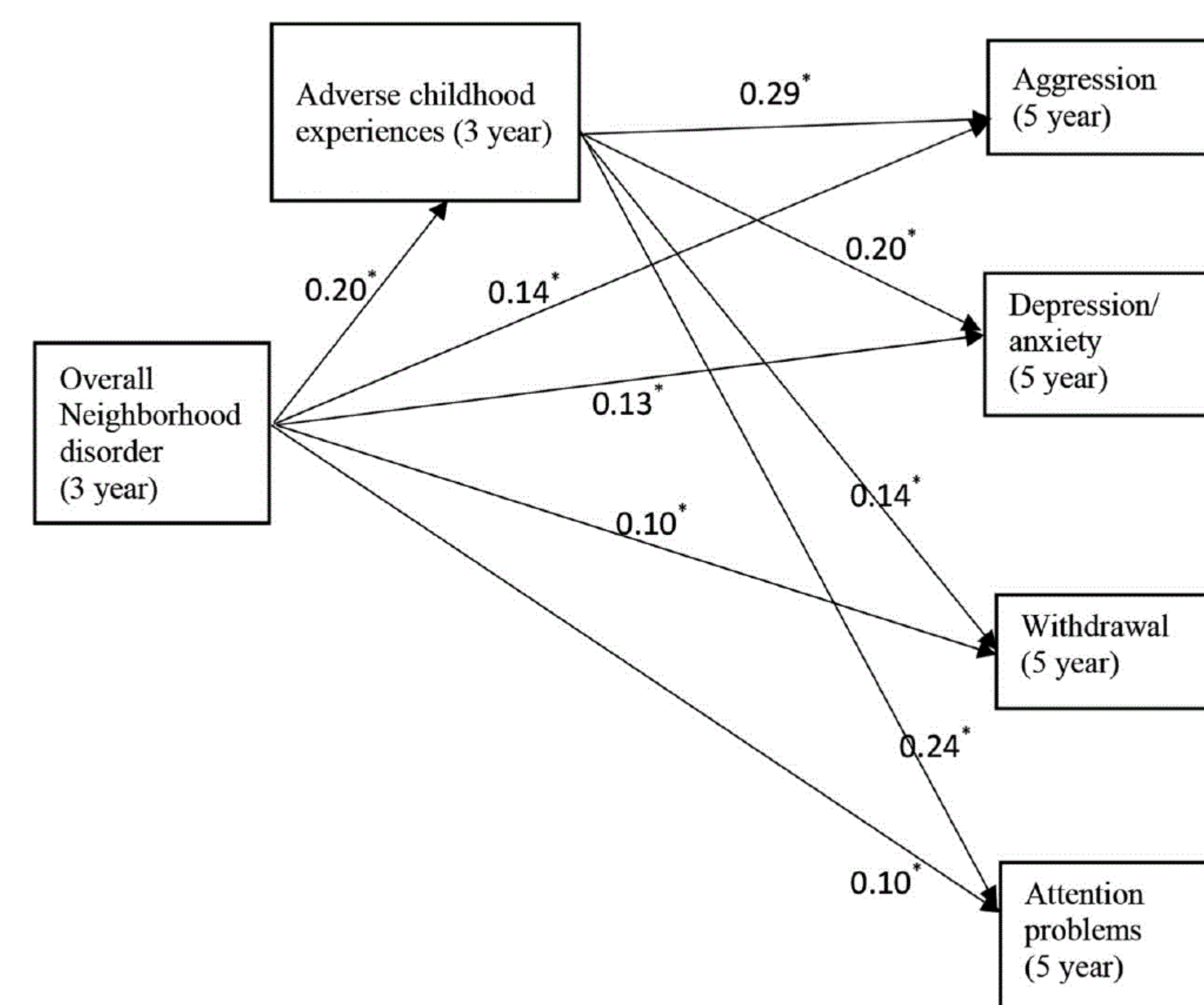
**Analytic strategy.** Path analysis with a maximum likelihood estimator was conducted by Mplus 7 to explore the process by which neighborhood disorder influences the child's behavior problems through the family-level ACEs.

**Descriptive statistics.** The total sample was 3001, with 48% girls and 52% boys reported by mothers. The racial distribution of the sample was 21.3% white, 51.1% African-American, 24.8% Hispanic, and 2.8% other races. The mean score of overall neighborhood disorder was 1.75 on a 1-to-4 scale. The average level of behavior problems on a 0-to-2 scale was 0.54 for aggression, 0.26 for attention problems, 0.24 for depression/anxiety, and 0.23 for withdrawal.

## RESULTS OF ACEs

ACEs	N	%	ACEs breakdown	N	%
No ACE	342	11.2%	Exposure to IPV	1,505	54.3%
1 ACE	509	17.6%	Emotional abuse	1,252	50.7%
2 ACEs	595	20.6%	Parents not living together	1,386	49.2%
3 ACEs	535	18.5%	Financial hardship	1,296	45.4%
4 ACEs	444	15.4%	Physical abuse	772	31.3%
5 ACEs	271	9.4%	Parental mental health problems	800	27.7%
6 ACEs	129	4.5%	Neglect	288	11.7%
7 ACEs	58	2.0%	Parental substance abuse problems	268	9.4%
8 ACEs	21	0.7%	Parental involvement with criminal justice system	201	7.6%
9 ACEs	1	~0%	Father's death	24	7.6%

## MODEL RESULTS



The model showed a good fit: root mean square error of approximation = 0.02, comparative fit index = 0.99, and standardized root mean square residual = 0.004.

After controlling for covariates, the level of neighborhood disorder was positively and directly associated with the child's problems of aggression, depression/anxiety, withdrawal, and attention ( $b = .14, .13, .10, \text{ and } .10$ , all  $p < .05$ ). Meanwhile, the association between neighborhood disorder and the child's behavioral problems was partially mediated by ACEs: the indirect effects through ACEs were found for all behavioral problems ( $b = .06, .04, .03, \text{ and } .05$ , all  $p < .05$ ).

Said differently, higher levels of neighborhood disorder were associated with higher levels of ACEs (0.20), which, in turn, were associated with higher levels of aggression (0.29), depression/ anxiety (0.20), withdrawal (0.14), and attention problems (0.24). Neighborhood disorder and ACEs had the strongest effects on the child's aggression and weakest effects on withdrawal.

## CONCLUSIONS & IMPLICATIONS

The study suggests that disorder within neighborhoods may affect a child's behavioral health problems through increasing the likelihood of a child experiencing a higher level of ACEs. The study focused on young children (ages 3 and 5) who, by virtue of their age, are likely to have frequent contact with pediatricians. As such, the findings from this study have important implications for pediatricians, who have the opportunity to provide critical early intervention and prevention.

The study underscores the importance of implementing ACEs screening for children living in the disordered neighborhoods as a preventive strategy. Given the finding that IPV and emotional abuse were most common in this sample, it may be wise to focus preventive ACEs conversations around these 2 specific types. Finally, given the findings that both neighborhood disorder and ACEs impact child behavior, the development of early childhood intervention programs should focus on reducing both neighborhood disorder and child adversities to boost the healthy development of children.