

# Impact of Intimate Partner Violence on Parenting and Children's Externalizing Behaviors: Transactional Processes Over Time

Violence Against Women  
2021, Vol. 27(14) 2576–2599  
© The Author(s) 2021



Article reuse guidelines:  
sagepub.com/journals-permissions  
DOI: 10.1177/1077801220985125  
journals.sagepub.com/home/vaw



Gerard Chung<sup>1</sup> , Todd M. Jensen<sup>1</sup>, Anna Parisi<sup>1</sup>,  
Rebecca J. Macy<sup>1</sup> , and Paul Lanier<sup>1</sup>

## Abstract

This study used longitudinal data to examine the transactional associations between mothers' spanking and mother–child relationship quality with children's externalizing behaviors in the context of intimate partner violence (IPV). Data came from a sample of 1,152 low-income mothers with children age 10–14 years. Results showed that past-year IPV triggered transactional associations by increasing children's externalizing behaviors which, in turn, increased spanking and subsequently more externalizing behaviors. Transactional associations were also found for relationship quality. All outcomes used were mothers-reported except relationship quality. Implications for practice include the importance of the mother–child dyad and their reciprocal processes in assessment and treatment.

## Keywords

intimate partner violence, children externalizing behaviors, spanking, parent–child relationship, transactional model

## Introduction

Intimate partner violence (IPV) is widespread in the United States. Approximately 37% of women and 31% of men in the United States reported having experienced lifetime sexual violence, physical violence, and/or stalking by an intimate partner

---

<sup>1</sup>University of North Carolina at Chapel Hill, USA

### Corresponding Author:

Gerard Chung, School of Social Work, University of North Carolina at Chapel Hill, Tate-Turner-Kuralt Building, 325 Pittsboro Street CB# 3550, Chapel Hill, NC 27599, USA.

Email: [gcsk1982@live.unc.edu](mailto:gcsk1982@live.unc.edu)

(Smith et al., 2017). Rates of IPV are particularly high among parenting couples, indicating that high rates of children living in these households are exposed to violence. Past estimates indicate that as many as 15.5 million U.S. children lived in families in which IPV has occurred in the past year (McDonald et al., 2006). The 2017–2018 National Survey of Children’s Health estimated over 3.7 million children (5.3% of children) have witnessed domestic violence in the home (Child and Adolescent Health Measurement Initiative, 2020).

An earlier review of studies by Edleson (1999), and more recently by Øverlien and Holt (2019), indicated that children experience violence with all their senses and that by simply living in homes where there is violence among adults, children are then exposed to and are likewise living with IPV. For children, experiences of IPV in their families is a significant problem because it has been associated with the development of a wide range of negative psychological, behavioral, and emotional problems (Vu et al., 2016). One concern for children who experienced IPV at home is the development of externalizing behaviors (Fong et al., 2019), which refer to a range of under-controlled behaviors (e.g., aggressiveness, disruptiveness, and conduct problems; Achenbach, 1992). Evidence suggests that externalizing behaviors developed during childhood can intensify across the lifespan (Vu et al., 2016) and are associated with later problems in adulthood such as criminal offending, substance misuse, psychiatric disorders, and violence perpetration (Foster & Jones, 2005; Reef et al., 2011).

The aim of this study is to understand how changes in children’s externalizing behaviors are associated with changes in parenting outcomes such as the mother–child relationship and parental spanking in the context of IPV. IPV that occurs in the home affects mothers and children, often undermining the relationships between mothers and their children (Levendosky et al., 2012; McIntosh et al., 2019; Renner & Boel-Studt, 2013). This study focused on a sample of older children age 10–14 years—a relatively overlooked population in this area of research. With the emphasis put on practitioners to work with both the mother and the child in the aftermath of violence at home (Øverlien & Holt, 2019; Lapierre et al., 2018), the results of this study can be useful in improving interventions to support mother–child relationships in the aftermath of IPV.

### ***The Mediating Role of Parenting Between IPV and Externalizing Behaviors***

Parenting behaviors play a central role in influencing children’s behaviors, including their risk of developing externalizing problems. For example, a recent meta-analysis of 1,435 studies found that parenting marked by high levels of responsiveness and behavioral control were longitudinally associated with fewer externalizing problems in children, whereas low levels of parental responsiveness and control were linked with an increase in externalizing behaviors (Pinquart, 2017). Consequently, extensive research has conceptualized parenting behaviors as a key mediator in the relationship between IPV and children’s externalizing behaviors (Chiesa et al., 2018).

The spillover hypothesis provides a useful framework for understanding how parenting can mediate the relationship between IPV and children’s externalizing behaviors

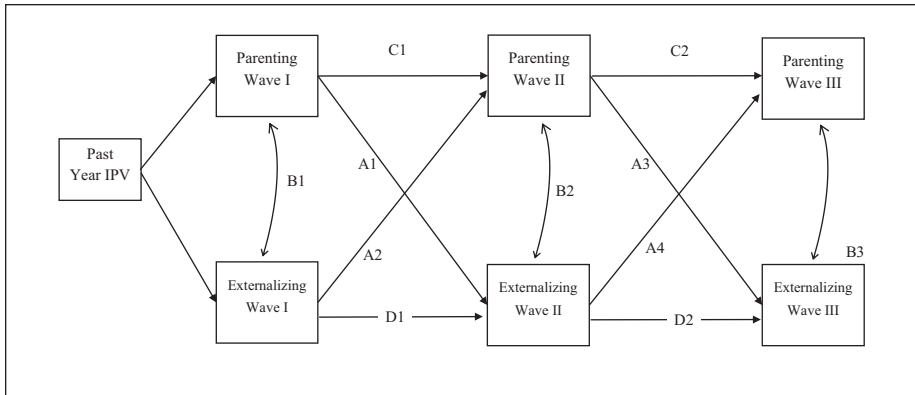
(Grasso et al., 2015). The hypothesis suggests that although family members comprise separate subsystems such as a spousal or a child subsystem, they can influence one another. Conflict within the spousal subsystem has the potential to spill over into the parent–child subsystem through its impact on parent–child relationships or parenting (Krishnakumar & Buehler, 2000). For instance, the acrimony of interparental conflict could reduce parents' emotional capacity to adequately attend to their children's needs.

Some studies have found associations between physical and psychological IPV and a decrease in parenting quality for parents with younger children. For instance, one study found that low-income mothers who experienced past-year physical violence showed increases in hostile and harsh parenting behaviors with their young toddlers (Gustafsson & Cox, 2012), while another study found increased maternal use of spanking with their children at age 5 as a result of psychological violence, though not for physical violence (Postmus et al., 2012). A recent meta-analysis of studies involving children 11 years or younger found significant associations between IPV (physical and psychological violence) and ineffective parenting practices including lower parental warmth and parent–child engagement, and child maltreatment (Chiesa et al., 2018). A growing body of research, though all mostly with younger children up to age 10, has applied the spillover hypothesis to examine how IPV in the home affects children's externalizing behaviors through the mediating effects of parenting (Chiesa et al., 2018). For instance, harsh parenting was found to mediate the effects of past-year IPV (physical and psychological) on externalizing behaviors (Zarling et al., 2013), while punitive parenting (Greene et al., 2018) mediated the relationship between past-year physical IPV and externalizing behaviors among children but not for psychological IPV. While there is evidence to support these associations among younger children, there is a lack of studies that focus on older children (10 years and older).

There is also a call for researchers to consider children not as passive bystanders or recipients of the effects of violence occurring at home but as active individuals who are able to influence others in the family (Øverlien & Holt, 2019). The majority of existing studies have adopted a *parent-effects* model in which parenting is assumed to have a unidirectional effect on children (Serbin et al., 2015). Consequently, few studies have considered the potential for a *child-effects* model whereby the effect of IPV on children's externalizing behaviors, in turn, influences parenting. Perhaps even more plausible and warranting further attention are reciprocal and bidirectional relationships between parent and child behaviors, as suggested by a transactional model, in understanding the effects of IPV on parenting and children.

### ***Transactional Associations Between Parenting and Children's Externalizing Behaviors***

Current theories of developmental psychopathology often use transactional frameworks to explain psychopathological behaviors as a function of the reciprocal process between children and their environments over time (Leve & Cicchetti, 2016). Likewise, conceptual models of parenting also propose transactional processes to explain the



**Figure 1.** Conceptualization of autoregressive, cross-lagged panel path model.  
 Note. Parenting outcomes are spanking and parent–child relationship quality. All outcomes are controlled for using covariates from the propensity model (Table 2). IPV = intimate partner violence.

relationship between parenting practices and the development of children’s externalizing behaviors (Belsky, 1984; Patterson, 1982; Sameroff & Mackenzie, 2003).

A transactional model explicating the impact of IPV on parenting and children’s externalizing behaviors is schematically presented in Figure 1. The model allows for a parent-effects pathway in which the effects of IPV on children’s behaviors are mediated by parenting behaviors. This model allows for positive changes in parenting behaviors, not just negative changes since studies show that mothers in response to the needs of their children could employ more positive parenting behaviors to parent their children, such as improving support in their relationships or decreased use of spanking in the context of IPV (Greeson et al., 2014; Lapierre, 2010; Lapierre et al., 2018). Hence, in this study, we allow for possible heterogeneity in mothers’ parenting in response to their children in the context of IPV.

The transactional model simultaneously accounts for a pathway indicated by a child-effects model in which IPV is hypothesized to elevate children’s externalizing behaviors which, in turn, elicit positive or negative responses from parents. The model also proposes that parental responses to IPV and children’s behaviors influence each other reciprocally over time. For example, externalizing behaviors could affect parenting (e.g., spanking), which in turn could lead to further behavioral problems and instabilities in the parent–child relationship (also referred to as a positive feedback loop or coercive process; Serbin et al., 2015).

To date, much of the research on the effects of IPV in the household on children’s externalizing behaviors has focused on the mediating effects of parenting behaviors (Chiesa et al., 2018). Such parent-effects models, by precluding the evaluation of potential child-effects, will not adequately account for the possibility of transactions between parenting and child behaviors and may be telling only a portion of the story implied by the transactional model (Serbin et al., 2015). Furthermore, existing studies

have focused primarily on young children (see review by Fong et al., 2019). However, replication of studies among older children transitioning into adolescence is also important given that this age period is one of elevated vulnerability for the development of behavioral problems (Deković, 1999). In this study, we focused on two parenting outcomes: spanking and parent–child relationship. Although spanking is mostly used with younger children, studies have found that it is still used by parents on older children in the United States (e.g., up to age 11 in Day et al., 1998; age 10 and older in Giles-Sims et al., 1995; 50% of parents at age 12, and 33% at age 14 in Straus & Stewart, 1999). Both spanking and poor parent–child relationships (lacking in warmth, communication, and support) have been found to be associated with externalizing behaviors among children (Gershoff et al., 2018; Pinquart, 2017).

To address the aforementioned gaps in research, the goals of this study were to use a transactional model to (a) investigate the effects of IPV on two parenting outcomes (maternal spanking and parent–child relationship) and the externalizing behaviors of children, and (b) examine transactional associations between parenting and child behaviors. We hypothesized that IPV will affect parenting outcomes and children’s externalizing behaviors, both of which will go on to affect each other in a transactional manner over time.

## Method

### *Data and Sample*

Data for this study came from the survey component of *Welfare, Children, and Families: A Three-City Study* (TCS). TCS is a longitudinal study of the effects of welfare reform on low-income households in San Antonio, Chicago, and Boston (Winston et al., 1999). Approximately 2,400 low-income families (i.e., family income at or below 200% of the Federal poverty line) were randomly sampled with racial and income stratifications from low-income neighborhoods. Surveys were conducted in-home and in-person with the mothers and their children using computer-assisted interviews and audio self-interviews for sensitive information (see Winston et al., 1999, for details on sampling procedures, recruitment, and survey administration). Wave I was conducted in 1999, Wave II in 2000 (88% retention rate), and Wave III in 2005 (80% retention rate of Wave I sample). Our study used all three waves of data reported by the mothers and their focal children. Our research was reviewed by the Office of Human Research Ethics of the University of North Carolina at Chapel Hill and determined to not require further review (IRB 19-1037).

Although the TCS was done from 1999–2005, the data are still useful for the aims of this study because of its large sample size, relevant study variables (e.g., parenting and children’s behavior outcomes), and key covariates for statistical control of confounders. Researchers have also highlighted the lack of longitudinal studies in violence against women research (Campbell, 2011). The TCS offers longitudinal data that give us an opportunity to examine temporal effects and to statistically control for confounding factors.

Two cohorts of children were interviewed for the TCS: younger children (birth to age 4 years) and older children (10–14 years). Given the nature of our study aims, we focused on the cohort of older children (Wave I,  $n = 1,152$ ). We then limited the sample to mothers who completed the surveys across all three waves (53 children excluded). The sample was further restricted to children who resided with their mothers in all waves (103 children excluded). Finally, because focal children who identified their race/ethnicities as “Others” were so few ( $n = 20$ ), we limited our sample to those who identified as Whites, African Americans, or Hispanics. Finally, we excluded 11 mothers who did not report data (i.e., missing) on the IPV variable. Our final analytical sample consisted of 965 children and their mothers. Weighted sample descriptive statistics are displayed in Table 1. Most mothers identified as Hispanic (57%) and had a mean age of 36.98 years ( $SE = 0.34$ ). Most mothers indicated being single (59%) and reported their educational level as having a high school diploma/GED or less (56%). The focal children were mostly female (55%) with a mean age of 12.09 years ( $SE = 0.08$ ).

## Measures

Variables were specified for two consecutive and distinct analytical steps: (a) propensity score matching (PSM), and (b) outcome analysis using autoregressive cross-lagged panel models. For the propensity score model (further described below), our variable of interest was IPV and the list of covariates used for matching is shown in Table 2. Available covariates were chosen to prioritize known predictors of IPV as well as plausible confounders of associations between IPV and our outcomes of interest (Kainz et al., 2017); these confounders were based on extant literature highlighting factors associated with IPV, spanking, parent–child relationship quality, and children’s externalizing behaviors. The covariates used in the PSM were also included in the outcome analysis as covariates. The key variables of interest in the autoregressive cross-lagged models were IPV, parent–child relationship quality, spanking, and externalizing behaviors.

*Intimate partner violence (Waves I–III).* Information on past-year IPV was measured using nine items from the Revised Conflict Tactics Scales (Straus et al., 1996). Examples of items include asking mothers to indicate on a Likert-type 4-point scale how often in the past 12 months a romantic partner had pushed, grab, or shoved them; slapped, kicked, or bit them; beaten them; choked or burned them; shouted/yelled or threatened to hit or throw something at them; and forced them into any sexual activity against their will (1 = “Never” to 4 = “Often”). The alpha for the items ranged from .89 to .91 across the three waves. A dichotomous variable was created to indicate whether the mothers had experienced one or more of these forms of IPV in the past 12 months (i.e., 0 = mothers who indicated “Never” on all items and 1 = mothers who indicated otherwise on one or more items). Thus, 265 mothers (27%) reported that they had experienced one or more forms of IPV in the past 12 months while 700 mothers (73%) did not (see Table 1). Waves II and III of IPV were used as time-specific controls in the outcome models.

**Table 1.** Weighted Sample Characteristics Overall and by Group.

Variables	Overall ( <i>n</i> = 965)			IPV ( <i>n</i> = 265)			Non-IPV ( <i>n</i> = 700)		
	%	<i>M</i>	<i>SE</i>	%	<i>M</i>	<i>SE</i>	%	<i>M</i>	<i>SE</i>
Race mother									
AA	37	—	—	50	—	—	34	—	—
Hispanic	57	—	—	45	—	—	60	—	—
Whites	6	—	—	5	—	—	6	—	—
Age mother (years)	—	36.98	0.34	—	35.02	0.51	—	37.62	0.42
Marital status									
Single	59	—	—	74	—	—	54	—	—
Married/cohabiting	41	—	—	26	—	—	46	—	—
Age child (years)	—	12.09	0.08	—	11.92	0.15	—	12.14	0.09
Gender child									
Male	45	—	—	46	—	—	45	—	—
Female	55	—	—	54	—	—	55	—	—
Highest education mother									
No degree to eighth grade	16	—	—	11	—	—	18	—	—
Ninth to 12th grade	18	—	—	19	—	—	18	—	—
GED	11	—	—	8	—	—	12	—	—
HS diploma	11	—	—	11	—	—	11	—	—
Technical school	4	—	—	11	—	—	2	—	—
Tech diploma/RN	15	—	—	13	—	—	15	—	—
College/associate degree	21	—	—	27	—	—	19	—	—
BA degree or higher	4	—	—	0	—	—	5	—	—
Employment status									
Unemployed	52	—	—	49	—	—	53	—	—
Part-time	23	—	—	26	—	—	22	—	—
Full-time	25	—	—	25	—	—	25	—	—
Childhood abuse									
No	70	—	—	53	—	—	76	—	—
Yes	30	—	—	47	—	—	24	—	—
Income-needs ratio	—	0.76	0.03	—	0.73	0.05	—	0.77	0.04
Financial strain perceived	—	-0.03	0.04	—	0.13	0.07	—	-0.09	0.04
Depression	—	0.92	0.04	—	1.29	0.08	—	0.80	0.05
Global self-esteem	—	42.94	0.38	—	41.97	0.66	—	43.26	0.46
Drug and alcohol use	—	-0.14	0.02	—	0.04	0.05	—	-0.20	0.02
# Housing problems	—	1.43	0.09	—	1.64	0.17	—	1.36	0.11
# Neighborhood problems	—	19.95	0.36	—	21.2	0.61	—	19.54	0.43
Spanking W1	—	2.36	0.06	—	2.55	0.10	—	2.30	0.07
Spanking W2	—	2.26	0.06	—	2.67	0.11	—	2.12	0.07
Spanking W3	—	1.77	0.06	—	1.80	0.13	—	1.76	0.07

(continued)

**Table 1. (continued)**

Variables	Overall ( <i>n</i> = 965)			IPV ( <i>n</i> = 265)			Non-IPV ( <i>n</i> = 700)		
	%	<i>M</i>	<i>SE</i>	%	<i>M</i>	<i>SE</i>	%	<i>M</i>	<i>SE</i>
Parent-child relationship W1	—	3.35	0.02	—	3.29	0.05	—	3.37	0.03
Parent-child relationship W2	—	3.89	0.04	—	3.84	0.07	—	3.91	0.05
Parent-child relationship W3	—	3.94	0.04	—	3.88	0.08	—	3.96	0.05
Externalizing behaviors W1	—	52.00	0.59	—	54.76	1.02	—	51.09	0.69
Externalizing behaviors W2	—	51.08	0.65	—	55.17	1.24	—	49.71	0.74
Externalizing behaviors W3	—	51.65	0.79	—	55.33	1.17	—	50.48	0.91

Note. Weighted characteristics of the sample before missing data analysis and propensity score matching. IPV: women who experienced IPV in the past 12 months; Non-IPV: women who did not experience IPV in the past 12 months. IPV = intimate partner violence; AA = African American; GED = general educational development.

*Parent-child relationship quality (Waves I-III).* Children were asked to report on their perceptions of relationship quality with their mothers using 12 items adapted from the Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987). The IPPA measures three dimensions of the parent-child relationship: communication, trust, and alienation. Examples of items include “When we discuss things, my mother cares about my point of view” and “I tell my mother about my problems and troubles.” The response options reflected a 5-point Likert-type scale (1 = *never true* to 5 = *always true*). Negatively worded items were first reverse-coded and the 12 items were averaged to create a mean composite score with higher scores reflecting better parent-child relationship quality. Cronbach’s alpha ranged from .73 to .85 across three waves.

*Spanking (Waves I-III).* Information about mothers’ spanking was measured using two items from the Parent Styles Scale (Coley et al., 2014). Mothers reported their attitudes toward spanking based on two items: (a) “sometimes the child needs a good spanking to help him or her understand” and (b) “I spank the child when he or she has done something really wrong.” Response options reflected a 4-point Likert-type scale (1 = *definitely true* to 4 = *definitely false*). The items in this study had Cronbach’s alpha of .78 to .83 (Waves I-III). We reverse-coded the items and created a mean composite score such that higher scores reflect higher spanking engagement (Wave I: *M* = 2.29, *SD* = 1.11).

*Externalizing behaviors (Waves I-III).* Children’s externalizing problems were assessed using the Child Behavior Checklist (CBCL) for ages 4 to 18 years (Achenbach, 1991). In this study, the CBCL’s 33-item externalizing subscale that measures aggressive, noncompliant, and other under-controlled behaviors was administered to the mothers. Mothers rated how true each item was for the focal child in the past 6 months on a 3-point Likert-type scale (1 = “Not true” to 3 = “Very true or often true”). Cronbach’s



**Table 2.** Covariates Used in Propensity Score Model and Outcome Model.

Variable	Scale <sup>a</sup>	# items	Type	Details
Depression maternal	BSI	6	Likert	Impact of depression symptoms during the past week (1 = <i>Not at all</i> to 5 = <i>Extremely</i> )
Income-needs ratio	—	1	Continuous	Calculated using division of household income by the number of household members
Employment status	—	1	Categorical	Employment status in the past week (0 = <i>unemployed</i> , 1 = <i>part-time</i> , 2 = <i>full-time</i> )
Financial strain perceived	—	5	Likert	How often they experienced financial difficulties such as paying bills and buying food (1 = <i>Never</i> to 5 = <i>All the time</i> )
Childhood abuse history	—	2	Dichotomous	Mothers' experiences of physical or sexual abuse before the age of 18 (0 = <i>No</i> , 1 = <i>Yes</i> )
Global self-esteem	Rosenberg	10	Likert	Positive and negative feelings about self (1 = <i>Strongly disagree</i> to 4 = <i>Strongly agree</i> )
# of household problems	—	8	Dichotomous	Presence of housing problems, for example, leaking roofs and broken windows (0 = <i>No</i> , 1 = <i>Yes</i> )
# of neighborhood problems	—	11	Likert	Presence of problems in the neighborhood (1 = <i>No problem</i> to 3 = <i>A big problem</i> )
Drug and alcohol usage	—	4	Likert	Mothers' alcohol and drug use in the past year, e.g. marijuana usage and drunk (1 = <i>Never</i> to 4 = <i>Often</i> )
Gender child	—	1	Dichotomous	(0 = <i>male</i> , 1 = <i>female</i> )
Race mother	—	1	Categorical	(0 = <i>African American</i> , 1 = <i>Hispanic</i> , 2 = <i>Whites</i> )
Age child	—	1	Continuous	Number of years
Age mother	—	1	Continuous	Number of years
Marital status	—	1	Dichotomous	(0 = <i>single</i> , 1 = <i>married or cohabiting</i> )
Mother's education	—	1	Categorical	(0 = <i>Eighth grade and lower</i> to 8 = <i>Bachelor's degree or higher</i> )

Note: BSI = brief symptom inventory; Rosenberg Self-concept scale.

<sup>a</sup>Variable with no scales imply measure was developed for the Three-City Study.

alpha scores were .90 for all three waves. A mean composite score was created (Wave I:  $M = 52.95$ ,  $SD = 11.35$ ). Higher scores reflect higher externalizing behaviors.

### Analytic Method

**Propensity Score Matching (PSM).** In examining the causal effects of IPV on parenting and children's externalizing behaviors, one challenge is to disentangle the unique effects of IPV from confounders that are linked to both IPV and outcomes (Kainz et al., 2017). For instance, studies have found that children exposed to IPV can differ from unexposed children on important background characteristics (e.g., maternal depression or child gender), which may also influence their externalizing behaviors (Fong et al., 2019; Moylan et al., 2010). Table 1 highlights several differences in the sociodemographic characteristics of families exposed to IPV and those not exposed. Thus, efforts were warranted to methodologically address potential confounding resulting from observed differences between mothers who experienced IPV in the past year (referred to as the "IPV group") and mothers who did not experience IPV ("non-IPV group"). We employed PSM to optimize our modeling of a counterfactual condition for the IPV-exposed group (Stuart, 2010). PSM methods are useful for reducing the effects of confounding in observational studies (Austin, 2011) and are superior to traditional regression covariate adjustment in their ability to approximate experimental designs (Green & Stuart, 2014; Stuart, 2010).

The first step of PSM was to generate propensity scores by modeling IPV exposure (i.e., mothers who experienced IPV vs. those who did not) as a function of the covariates (Table 2) that may confound IPV exposure and study outcomes (Austin, 2011). We used logistic regression with IPV (experienced vs. not experienced) as the outcome and the covariates as the predictors. For each case, all the covariates were then summarized by a single number: the propensity score, which is the predicted probability of experiencing IPV (i.e., IPV group) generated from the logistic regression (Leite, 2017). Before regression, missing values for covariates (ranged from 1–6%) were managed using multivariate imputation by chained equations. Twenty imputations were used since this is considered optimal (Enders, 2010). Analyses were subsequently conducted on the imputed data set as recommended by Leite (2017).

After generating propensity scores for each case, we used these propensity scores to match IPV group cases with non-IPV group cases (Leite, 2017). The primary goal of matching on the propensity score is to produce IPV and non-IPV groups that are balanced on a set of covariates that account for non-random selection to the IPV group and variation in the study outcomes. Balance is vital to ensure that propensity score methods render potential confounders strongly ignorable, thus mimicking random assignment (Kainz et al., 2017).

In this study, we used the *full matching method*, which used all available cases in the sample by grouping them into a series of matched clusters containing at least one case from the IPV group and one case from the non-IPV group. Full matching forms these matched clusters in an optimal way, allowing for more than one case from the IPV group and/or non-IPV group per cluster to minimize the difference in propensity

scores across cases in each cluster (see Stuart & Green, 2008). One key advantage of using the full matching method over other matching methods (e.g.,  $k:1$  nearest neighbor matching) is that it can match on the entire sample without excluding any cases. Exclusion of cases is undesirable because results may not reflect the effect for all treated cases.

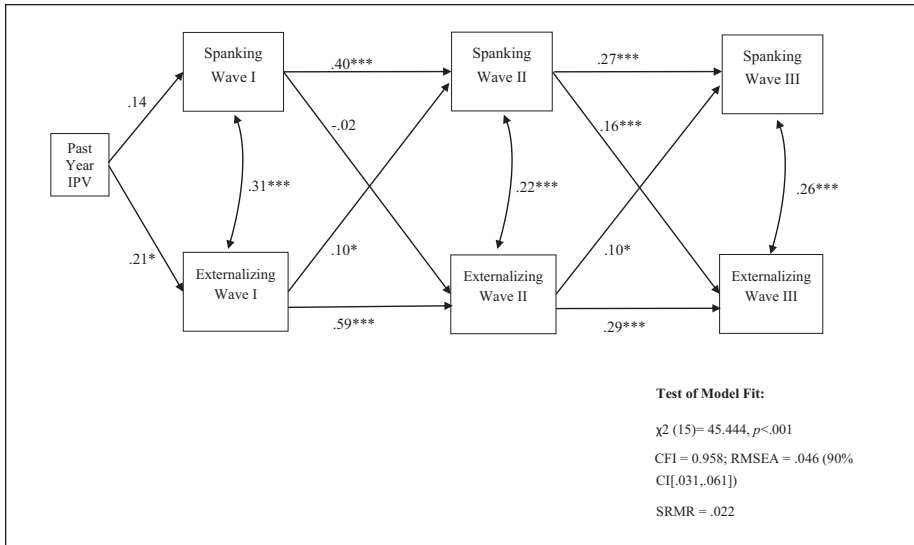
To evaluate whether appropriate balance was achieved in the matching method, we used two statistics: (a) standardized bias for continuous variables, defined as the weighted difference in means between the IPV group and the non-IPV group divided by the standard deviation in the full, unadjusted sample (for binary variables, raw differences in proportions; Kainz et al., 2017; Stuart, 2010); and (b) variance ratio, defined as the ratio of the sample variance of the logit values between the IPV group and non-IPV group (Kainz et al., 2017). Sufficient balance was achieved if the matched IPV group and non-IPV group yielded a standardized bias under .25 and a variance ratio close to 1.00 or between 0.50 and 2.00 (Stuart, 2010).

Results of our matching indicated that the covariates used in this study were successfully balanced between the two groups, with the highest standardized bias at .10 and highest variance ratio at 1.07. Full matching yields a weight during outcome model estimation which was multiplied with sampling weights for use in the outcome model. PSM was performed in R Studio v1.2 using the Matchit package (Ho et al., 2007).

**Outcome model.** An autoregressive, cross-lagged panel path model was used because it is able to examine longitudinal, bidirectional influences of one construct on another (i.e., paths A1–A4 in Figure 1) while simultaneously controlling for time-specific associations between constructs (i.e., B1–B3) and the stability of each construct over time (Serbin et al., 2015).

In this outcome model, IPV (i.e., IPV group or non-IPV group) was specified as the predictor (left-side of Figure 1). We then statistically tested the indirect effects of IPV on the outcomes using the bootstrap method for mediational analysis as recommended by Hayes (2013). We generated 10,000 bootstrap samples to produce bias-corrected bootstrap confidence intervals for the indirect effect. If the 95% confidence limits included zero, the indirect effect test is not significant. Models for both parenting outcomes were estimated independently. The covariates used in the PSM (i.e., Table 2) were also included as controls on all variables in Figure 1. To further mitigate bias in our estimation of the effects of IPV, IPV at Waves II and III were included to account for time-specific effects of IPV on the outcomes.

The following indices and values were prespecified as being indicative of acceptable model fit: (a) the root mean square error of approximation (RMSEA) and its 90% upper-bound confidence interval  $< .08$ ; (b) the standardized root mean square residual (SRMR)  $< .08$ ; and (c) the comparative fit index (CFI)  $> .95$  (Byrne, 2012). The chi-square test was reported but not given much weight in our model evaluation because the statistic is known to be sensitive to sample size. Diagnostic assessments of the variables indicate that the outcome variables were all normally distributed (kurtosis for all variables less than magnitude 3). We used the maximum likelihood estimator



**Figure 2.** Model’s standardized coefficients for spanking and externalizing behaviors. Note. Covariates (Table 2) and IPV (Waves II and III) are controlled for in all outcomes. IPV = intimate partner violence. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

with robust standard errors because it produces standard errors and a chi-square test statistic that is robust to multivariate non-normality (Byrne, 2012). Outcome models were analyzed using Mplus version 8.0.

## Results

The results of the model for children’s externalizing behaviors and parental spanking are shown in Figure 2. The model yielded acceptable fit:  $\chi^2(15) = 45.44, p < .001$ ; RMSEA = .046 (90% CI = [.031, .061]); CFI = .96; SRMR = .022. Autoregressive paths were found to be significant for spanking ( $\beta = .40, p < .001$  from Wave I to Wave II;  $\beta = .27, p < .001$  from Wave II to Wave III) and for externalizing behaviors ( $\beta = .59, p < .001$  from Wave I to Wave II;  $\beta = .29, p < .001$  from Wave II to Wave III). Wave-specific correlations between spanking and externalizing behaviors were significant, indicating that higher levels of spanking were correlated with higher levels of children’s externalizing behaviors at each wave.

Mothers who experienced IPV in the past year did not use more spanking at Wave I than those who did not experience IPV (Wave I,  $\beta = .14, p = .15$ ). However, they reported that their children had significantly higher levels of externalizing behaviors compared with the non-IPV group (Wave I,  $\beta = .21, p < .05$ ). Findings from the cross-lagged paths showed that only the mediational pathways (indirect effects) from IPV through externalizing behaviors at Wave I were significant (see Table 3). Thus, our

**Table 3.** Indirect Effects for Full Model (Parenting and Externalizing Behaviors Outcomes).

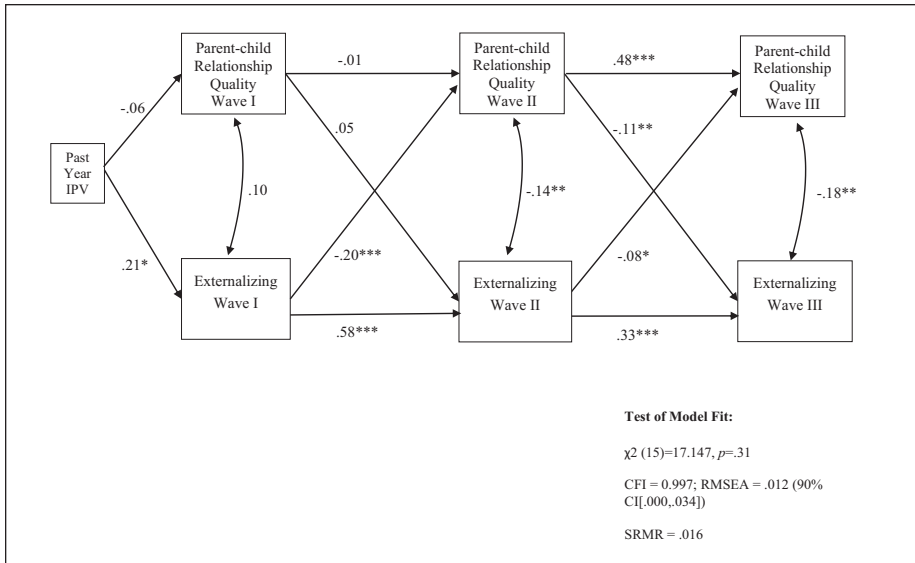
	Spanking			Parent-child relationship quality		
	Stand. $\beta$	LB 95% CI	RB 95% CI	Stand. $\beta$	LB 95% CI	RB 95% CI
<b>IPV <math>\rightarrow</math> EI <math>\rightarrow</math> P2</b>	<b>.02<sup>a</sup></b>	.002	.067	<b>-.041<sup>a</sup></b>	-.097	-.01
<b>IPV <math>\rightarrow</math> EI <math>\rightarrow</math> P2 <math>\rightarrow</math> E3</b>	<b>.003<sup>a</sup></b>	.001	.014	<b>.004<sup>a</sup></b>	.001	.014
<b>IPV <math>\rightarrow</math> EI <math>\rightarrow</math> P2 <math>\rightarrow</math> P3</b>	<b>.005<sup>a</sup></b>	.001	.021	<b>-.02<sup>a</sup></b>	-.048	-.005
<b>IPV <math>\rightarrow</math> EI <math>\rightarrow</math> E2 <math>\rightarrow</math> P3</b>	<b>.012<sup>a</sup></b>	.001	.037	<b>-.01<sup>a</sup></b>	-.032	-.001
IPV $\rightarrow$ P1 $\rightarrow$ E2	-.003	-.023	.006	-.003	-.025	.003
IPV $\rightarrow$ P1 $\rightarrow$ E2 $\rightarrow$ P3	.000	-.003	.000	.000	.000	.003
IPV $\rightarrow$ P1 $\rightarrow$ E2 $\rightarrow$ E3	-.001	-.006	.002	-.001	-.008	.001
IPV $\rightarrow$ P1 $\rightarrow$ P2 $\rightarrow$ E3	.009	.000	.032	.000	-.002	.000

Note. IPV is intimate partner violence Wave I; EI-E3 is externalizing Wave I to Wave III; P1-P3 is parenting outcomes (spanking or relationship quality) Wave I to Wave III; LB 95% CI is left-bound 95% confidence interval; RB is right-bound. For simplicity considerations, we did not report on every mediational path because there are 13 mediational paths.

<sup>a</sup>The mediational paths in bold are statistically significant based on confidence interval.

results did not support a parent-effects model in which parenting predicts subsequent children's externalizing behaviors. However, our results supported a child-effects model indicating that children's behaviors can be a precursor of parenting behaviors. Our results also highlighted a transactional influence between parents and child behaviors where a positive feedback loop was identified between spanking and externalizing behaviors (indirect effect:  $\beta = .003$ , 95% CI = [.001, .014]); that is, IPV was associated with higher children's externalizing behaviors at Wave I, and higher levels of children's externalizing behaviors at Wave I were associated with higher levels of spanking at Wave II. Higher levels of spanking at Wave II, in turn, were associated with higher externalizing behaviors among children at Wave III.

Figure 3 displays results from the model focused on children's externalizing behaviors and parent-child relationship quality. This model also yielded acceptable fit:  $\chi^2(15) = 17.15$ ,  $p = .32$ ; RMSEA = .012 (90% CI = [.000, .034]); CFI = .99; SRMR = .016. Autoregressive paths for parent-child relationship quality were only significant between Waves II and III ( $\beta = .48$ ,  $p < .001$ ); autoregressive paths for children's externalizing behaviors were significant across all waves ( $\beta = .58$ ,  $p < .001$  from Wave I to Wave II;  $\beta = .33$ ,  $p < .001$  from Wave II to Wave III). Wave-specific correlations between relationship quality and externalizing behaviors were significant (and negative) for Waves II and III. Mothers who experienced IPV in the past year did not report any differences in Wave I parent-child relationship quality compared with those who did not experience IPV ( $\beta = -.06$ ,  $p = .48$ ). However, children in the IPV group exhibited higher externalizing behaviors at Wave I than those in the non-IPV group (Wave I,  $\beta = .21$ ,  $p < .05$ ). There was only evidence to support a child-effects model because only the mediational pathways from IPV through externalizing behaviors at Wave I were significant (see Table 3). The results also supported a positive feedback loop where, as a result of IPV, greater Wave I externalizing behavior was associated



**Figure 3.** Model’s standardized coefficients for parent–child relationship and externalizing outcomes.

Note. Covariates (Table 2) and IPV (Waves II and III) are controlled for in all outcomes. IPV = intimate partner violence.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

with poorer parent–child relationship quality at Wave II. Poorer parent–child relationship quality at Wave II, in turn, was associated with greater externalizing behaviors at Wave III (indirect effect:  $\beta = .004$ , 95% CI = [.001, .014]).

### Discussion

In understanding the effects of IPV in the household on mothers and children, few studies have examined child behavior as a precursor to parenting, or transactional associations between child behavior and parenting after IPV has occurred. Accordingly, the goals of this study were to use a transactional model to (a) investigate the effects of IPV on parenting and externalizing behaviors of children, and (b) examine transactional associations between parent and child behaviors.

The first key finding in this study is that IPV indirectly affected both parenting outcomes at Wave II through the mediating effects of children’s externalizing behaviors at Wave I. For the first link between IPV and externalizing behaviors, existing studies have extensively documented the negative effects of IPV on children’s externalizing behaviors (e.g., Vu et al., 2016). In this study, we first used PSM to construct an appropriate counterfactual to reduce potential confounders. In our analyses, we found that children who experienced IPV in the household had more externalizing

behaviors than children who did not experience IPV. This increase in children's externalizing behaviors was then associated with subsequent changes in the relationships between mothers and their children, such as increased use of spanking and reduced warmth and connectedness in their relationships.

Our results, thus, support a child-effects model in the context of IPV which proposes that children's behaviors can influence parents' behaviors. However, we did not find evidence in this sample to support a parent-effects model. Specifically, we did not find that IPV had indirectly affected children's behaviors at Wave II through the mediating effects of parenting behaviors at Wave I. Our findings of a child-effects model reverse the directions in associations between parenting and children's behaviors that have often been conceptualized by a parent-effects model. Prior studies using parent-effects models have largely found that IPV leads to deficits in parenting that in turn become risk factors in the development of children's externalizing behaviors (e.g., Holmes, 2013). However, a limitation of these studies is that they were primarily derived from samples of younger children (Chiesa et al., 2018). Whereas in this study, a sample of children in their early adolescence was used because we hypothesized that child-effects may be more salient at a later child age. Compared with younger children, older children's externalizing behaviors may be less acceptable to parents and could provoke frustration and harsh responses from parents. Broader parenting studies have also supported a child-effects model with children in their middle childhood and adolescence stage (Cui et al., 2007), but not with samples of younger children (Taylor et al., 2013).

Our second research goal was to test for transactional associations between parenting and children's behaviors over time. Results showed that IPV first increased externalizing behaviors of children, which then elicited less effective parenting responses, which in turn further elevated their children's externalizing behaviors. This showed evidence of a transactional process that has been described in the literature as a positive feedback loop or a coercive process in which the behaviors of children and responses of parents strengthen each other over time (Patterson, 1982; Serbin et al., 2015). We, however, did not find evidence for a *negative* feedback loop where in response to increased children's externalizing behaviors (Wave I), effective parenting behaviors *increased* (e.g., closer mother-child relationship or less use of spanking at Wave II) to manage their children's behavioral problems. One explanation is that dealing with the increase in difficult behaviors of their children while also coping with IPV can be challenging for parents. Since we did not find any direct impact of IPV on parenting outcomes at Wave I, this could indicate that parents are trying their best to respond to their children but find it difficult. These results challenge the assumptions of the deficit model of parenting (Lapierre, 2010). We do note that the size of the indirect effect is small, probably because the changes are occurring across a 6-year period when children are transitioning to adolescence and would be exposed to other factors that can influence the outcomes. Nonetheless, this study shows that how parents respond to their children's behaviors will further impact their children's behaviors setting off a reinforcing process. One limitation of our study is that only three waves of data were used. Hence, we are unable to determine if the positive

feedback loop will be maintained or will change in future responses of parents or children. Future studies could use more waves of data to broaden the temporal scope of the investigation to better understand the transactional associations between parents and children over time.

Overall, the findings of this study highlight the importance of using a child-effects model to understand the effects of IPV on older children and their parents. The parent-effects model may be useful with younger children samples but may not adequately explain the effects of IPV on older children and their parents. This study also shows the importance of using transactional models in IPV research because there are potential transactional and reinforcing effects of parenting and children's behaviors over time that are triggered by the effects of IPV.

### *Strength and Limitations*

This study has several strengths. It is among the first to use a transactional model to examine the longitudinal effects of IPV on parenting and children's behaviors through parent-effects and child-effects pathways of bidirectional effects. This model allows us to conceptualize and examine the active role of children in influencing parents' responses in the context of IPV. Our study also used PSM with numerous covariates to rule out as much as possible confounding explanations of the effects of IPV on the outcomes.

This study, however, has some limitations that should be considered in the interpretation of the findings. First, we could not account for the parenting behaviors of the co-parents (e.g., fathers) because this information was not available in the study. Future studies could understand how both caregivers' parenting behaviors jointly influence children's behaviors (Chung, Phillips, et al., 2020). Second, the measures used were mostly based on parents' self-reports; this leads to potential issues of reporter bias and unmeasured heterogeneity. For instance, mothers who used more spanking could report more negative children's behaviors. Third, the items measuring parental spanking captured mothers' engagement in spanking but not the frequency or severity of spanking; the results of this study should be interpreted with this limitation in mind. Fourth, we did not account for other possible mediators, such as the mental health or parenting stress of mothers, that can affect parenting or children's behaviors (Chung, Lanier, et al., 2020). Fifth, the data used came from a study conducted from 1999–2005. Due to increased diversities in family structures in recent decades, patterns of family processes may have changed. Sixth, the generalizability of the study is limited to low-impoverished families living in urban areas across Boston, Chicago, and San Antonio. Seventh, we did not report relationships of covariates with the outcomes. Time-specific influences of any ongoing IPV would also have influences on the outcomes. Future studies analyzing growth trajectories could examine these relationships. Finally, our efforts in using multiple covariates to control for confounders with propensity score matching may still have excluded other confounders of IPV or the outcomes. This is a general limitation of propensity score methods (Shadish, 2013).



## Implications

The results of this study recommend that any interventions to help parents who experienced IPV would need to also focus on child-effects. Specifically, interventions should be developed based on a problem theory that includes attention to how IPV can affect children's behaviors which over time have reciprocal influences on parenting and children. Results from existing studies on how parenting is affected by IPV in the household are not in agreement; some studies, based on the deficits model of parenting, had found negative effects of IPV on parenting while others have found that IPV can actually improve parenting. Based on our study, we suggest that these differences could be due to these studies' exclusion of child-effects where estimating the effects of IPV on parenting has to consider the role of the child in influencing the responses of parents.

Based on this conceptualization, there are several implications for any interventions to help parents and children who experienced IPV. First, for interventions that are focused on parents and parenting, any impact of IPV on children is still of concern and should be assessed to prevent any risks of externalizing behaviors developing among children. Existing studies tell us that children's experiencing of IPV could be traumatic for them leading to the manifestation of externalizing behaviors (Graham-Bermann et al., 2006) as a form of adaptive response to IPV. Understanding how children's externalizing behaviors develop in the context of IPV would be critical for interventions. A recent review of interventions for parents who experienced IPV found that out of 26 studies, 13 studies had both mothers and children outcomes as primary intervention targets, but nine studies had mothers as their only primary target (Austin et al., 2017). Considering such prior research along with the results of this study, the impact of IPV in the household on children should not be overlooked particularly given its cascading influence on subsequent parenting.

Second, the role of the child, as well as the reciprocal role of the parent, should be taken into consideration in the assessment of IPV's effects on parenting and children's externalizing behaviors. This study supports calls made by other researchers (e.g., Austin et al., 2017; Øverlien & Holt, 2019) to consider the active role of the child and to work with both mother and child in the context of IPV. In particular, any preventive or treatment interventions that give attention to reciprocal child-to-parent and parent-to-child effects may enhance its effectiveness. One such intervention with children is Parent-Child Interaction Therapy (PCIT) which is effective in reducing coercive processes between parents and their children (Lanier et al., 2011) including children who experienced IPV (Timmer et al., 2010). However, the PCIT was developed for younger children and not adolescents. Pathways Triple P, another intensive parenting intervention, includes a focus on misattribution of children's behavior (Sanders & Pickering, 2017). However, there is a need for more research on interventions for parents of older youth that focus on the transactional processes in parent-child relationships, particularly in the context of IPV.

Third, selecting parents for treatments based on a "single point-in-time" assessment may exclude parents who do not show ineffective parenting now but may

develop problems in parenting later. Assessment should be conducted at multiple points in time to track changes in parenting. Fourth, the sooner intervention is provided to mothers and children who experienced IPV, the more likely it can interrupt pathogenic processes set in motion by the early experiences with IPV later on between externalizing behaviors and parenting responses. In their systematic review of parenting interventions for women in the context of IPV, Austin et al. (2017) found several intervention strategies that are effective including social support for mothers, improving the mother–child relationship and mother–child interactions, enhancing parenting knowledge and skills, and developing parents’ problem-solving skills. Interventions also need to be provided to families where IPV is on-going. These critical interventions would certainly include helping families to ensure their safety and the cessation of IPV.

Fifth, for low-income mothers experiencing on-going IPV, poverty may exacerbate the challenges of parenting for these mothers. Programs related to reducing financial hardship, such as income support services, food, and housing assistance are critical in reducing financial strain (O’Connor & Nepomnyaschy, 2019). Poverty may also increase the risk of IPV or together create a cycle that is difficult for women to escape (Gilroy et al., 2019). The Revised Model of Economic Solvency presents a useful model for interventions that aim to address poverty as a risk factor for IPV (Gilroy et al., 2019).

## Conclusion

With the high prevalence of IPV in families in the United States, many mothers and children are living in homes with IPV and are exposed to its effects. Existing studies have largely focused on how IPV affects mothers’ parenting quality such as the higher use of harsh parenting. Reduced parenting quality is in turn found to affect children’s behaviors. This study, instead, found that among older children (age 10–14), the effects of IPV in families had increased externalizing behaviors among children exposed to it, which subsequently affected mothers’ parenting quality. Furthermore, transactional processes were triggered where subsequent children’s behaviors and parental responses influence each other reciprocally over time. This study indicates that in understanding the effects of IPV on mothers’ parenting, we have to account for how older children as active individuals can influence parenting. Precluding the evaluation of potential child-effects will not adequately account for the possibility of transactions between parenting and child behaviors and may be telling only a portion of the story.

## Acknowledgments

This research uses data from the Three-City Study. The Three-City Study was conducted with support from the National Institute of Child Health and Human Development through grants HD36093 and HD25936 and the Office of the Assistant Secretary for Planning and Evaluation, Administration on Developmental Disabilities, Administration for Children and Families, Social Security Administration, National Institute of Mental Health, Boston Foundation, Annie E. Casey Foundation, Edna Mc-Connell Clark Foundation, Lloyd A. Fry Foundation, Hogg

Foundation for Mental Health, Robert Wood Johnson Foundation, Joyce Foundation, Henry J. Kaiser Family Foundation, W. K. Kellogg Foundation, Kronkosky Charitable Foundation, John D. and Catherine T. MacArthur Foundation, Charles Stewart Mott Foundation, David and Lucile Packard Foundation, and Woods Fund of Chicago. Information on how to obtain the data files is available on the Study website (<http://web.jhu.edu/threecitystudy/index.html>). No direct support was received from grant HD36093 and HD25936 for this analysis.

### Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

### ORCID iDs

Gerard Chung  <https://orcid.org/0000-0002-7852-1848>

Rebecca J. Macy  <https://orcid.org/0000-0003-4212-9753>

### References

- Achenbach, T. (1991). *Manual for the child behavior checklist/4-18 and 1991 profile*. University of Vermont Department of Psychiatry.
- Achenbach, T. (1992). *Manual for the child behavior checklist/2-3 and 1992 profile*. University of Vermont Department of Psychiatry.
- Armsden, G. C., & Greenberg, M. T. (1987). The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence, 16*(5), 427–454. <https://doi.org/10.1007/bf02202939>
- Austin, A. E., Shanahan, M. E., Barrios, Y. V., & Macy, R. J. (2017). A systematic review of interventions for women parenting in the context of intimate partner violence. *Trauma, Violence, & Abuse, 20*(4), 498–519. <https://doi.org/10.1177/1524838017719233>
- Austin, P. C. (2011). An introduction to propensity score methods for reducing the effects of confounding in observational studies. *Multivariate Behavioral Research, 46*(3), 399–424. <https://doi.org/10.1080/00273171.2011.568786>
- Belsky, J. (1984). The determinants of parenting: A process model. *Child Development, 55*(1), 83–96.
- Byrne, B. M. (2012). *Structural equation modeling with Mplus: Basic concepts, applications, and programming*. Routledge.
- Campbell, R. (2011). Guest Editor's introduction: Part II: Methodological advances in analytic techniques for longitudinal designs and evaluations of community interventions. *Violence Against Women, 17*(3), 291–294. <https://doi.org/10.1177/1077801211398228>
- Chiesa, A. E., Kallechey, L., Harlaar, N., Rashaan Ford, C., Garrido, E. F., Betts, W. R., & Maguire, S. (2018). Intimate partner violence victimization and parenting: A systematic review. *Child Abuse & Neglect, 80*, 285–300. <https://doi.org/10.1016/j.chiabu.2018.03.028>

- Child and Adolescent Health Measurement Initiative. (2020). *2017-2018 National Survey of Children's Health (NSCH) data query*. [www.childhealthdata.org](http://www.childhealthdata.org)
- Chung, G., Lanier, P., & Wong, P. Y. J. (2020). Mediating effects of parental stress on harsh parenting and parent-child relationship during corona virus (COVID-19) pandemic in Singapore. *Journal of Family Violence*. <https://doi.org/10.1007/s10896-020-00200-1>
- Chung, G., Phillips, J., Jensen, T. M., & Lanier, P. (2020). Parental involvement and adolescents' academic achievement: Latent profiles of mother and father warmth as a moderating influence. *Family Process*, *59*(2), 772–788. <https://doi.org/10.1111/famp.12450>
- Coley, R. L., Kull, M. A., & Carrano, J. (2014). Parental endorsement of spanking and children's internalizing and externalizing problems in African American and Hispanic families. *Journal of Family Psychology*, *28*(1), 22–31. <https://doi.org/10.1037/a0035272>
- Cui, M., Donnellan, M. B., & Conger, R. D. (2007). Reciprocal influences between parents' marital problems and adolescent internalizing and externalizing behavior. *Developmental Psychology*, *43*(6), 1544–1552. <https://doi.org/10.1037/0012-1649.43.6.1544>
- Day, R. D., Peterson, G. W., & McCracken, C. (1998). Predicting spanking of younger and older children by mothers and fathers. *Journal of Marriage and Family*, *60*(1), 79–94. <https://doi.org/10.2307/353443>
- Deković, M. (1999). Risk and protective factors in the development of problem behavior during adolescence. *Journal of Youth and Adolescence*, *28*(6), 667–685. <https://doi.org/10.1023/A:1021635516758>
- Edleson, J. L. (1999). Children's witnessing of adult domestic violence. *Journal of Interpersonal Violence*, *14*(8), 839–870. <https://doi.org/10.1177/088626099014008004>
- Enders, C. K. (2010). *Applied missing data analysis*. Guilford Press.
- Fong, V. C., Hawes, D., & Allen, J. L. (2019). A systematic review of risk and protective factors for externalizing problems in children exposed to intimate partner violence. *Trauma, Violence, & Abuse*, *20*(2), 149–167. <https://doi.org/10.1177/1524838017692383>
- Foster, E. M., & Jones, D. E. (2005). The high costs of aggression: Public expenditures resulting from conduct disorder. *American Journal of Public Health*, *95*(10), 1767–1772. <https://doi.org/10.2105/AJPH.2004.061424>
- Gershoff, E. T., Sattler, K. M. P., & Ansari, A. (2018). Strengthening causal estimates for links between spanking and children's externalizing behavior problems. *Psychological Science*, *29*(1), 110–120. <https://doi.org/10.1177/0956797617729816>
- Giles-Sims, J., Straus, M. A., & Sugarman, D. B. (1995). Child, maternal, and family characteristics associated with spanking. *Family Relations*, *44*(2), 170–176. <https://doi.org/10.2307/584804>
- Gilroy, H., Nava, A., & McFarlane, J. (2019). Developing a theory of economic solvency for women who have experienced intimate partner violence. *Violence Against Women*, *26*(9), 955–971. <https://doi.org/10.1177/1077801219853366>
- Graham-Bermann, S. A., DeVoe, E. R., Mattis, J. S., Lynch, S., & Thomas, S. A. (2006). Ecological predictors of traumatic stress symptoms in Caucasian and ethnic minority children exposed to intimate partner violence. *Violence Against Women*, *12*(7), 662–692. <https://doi.org/10.1177/1077801206290216>
- Grasso, D. J., Henry, D., Kestler, J., Nieto, R., Wakschlag, L. S., & Briggs-Gowan, M. J. (2015). Harsh parenting as a potential mediator of the association between intimate partner violence and child disruptive behavior in families with young children. *Journal of Interpersonal Violence*, *31*(11), 2102–2126. <https://doi.org/10.1177/0886260515572472>

- Green, K. M., & Stuart, E. A. (2014). Examining moderation analyses in propensity score methods: Application to depression and substance use. *Journal of Consulting and Clinical Psychology, 82*(5), 773–783. <https://doi.org/10.1037/a0036515>
- Greene, C. A., Chan, G., McCarthy, K. J., Wakschlag, L. S., & Briggs-Gowan, M. J. (2018). Psychological and physical intimate partner violence and young children's mental health: The role of maternal posttraumatic stress symptoms and parenting behaviors. *Child Abuse & Neglect, 77*, 168–179. <https://doi.org/10.1016/j.chiabu.2018.01.012>
- Greeson, M. R., Kennedy, A. C., Bybee, D. I., Beeble, M., Adams, A. E., & Sullivan, C. (2014). Beyond deficits: Intimate partner violence, maternal parenting, and child behavior over time. *American Journal of Community Psychology, 54*(1–2), 46–58. <https://doi.org/10.1007/s10464-014-9658-y>
- Gustafsson, H. C., & Cox, M. J. (2012). Relations among intimate partner violence, maternal depressive symptoms, and maternal parenting behaviors. *Journal of Marriage and Family, 74*(5), 1005–1020. <https://doi.org/10.1111/j.1741-3737.2012.01010.x>
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press.
- Ho, D., Imai, K., King, G., & Stuart, E. (2007). Matchit: Nonparametric preprocessing for parametric causal inference. *Journal of Statistical Software*. <http://gking.harvard.edu/matchit/>
- Holmes, M. R. (2013). Aggressive behavior of children exposed to intimate partner violence: An examination of maternal mental health, maternal warmth and child maltreatment. *Child Abuse & Neglect, 37*(8), 520–530. <https://doi.org/10.1016/j.chiabu.2012.12.006>
- Kainz, K., Greifer, N., Givens, A., Swietek, K., Lombardi, B. M., Zietz, S., & Kohn, J. L. (2017). Improving causal inference: Recommendations for covariate selection and balance in propensity score methods. *Journal of the Society for Social Work and Research, 8*(2), 279–303. <https://doi.org/10.1086/691464>
- Krishnakumar, A., & Buehler, C. (2000). Interparental conflict and parenting behaviors: A meta-analytic review. *Family Relations, 49*(1), 25–44. <https://doi.org/10.1111/j.1741-3729.2000.00025.x>
- Lapierre, S. (2010). Striving to be “good” mothers: Abused women's experiences of mothering. *Child Abuse Review, 19*, 342–357. <https://doi.org/10.1002/car.1113>
- Lanier, P., Kohl, P. L., Benz, J., Swinger, D., Moussette, P., & Drake, B. (2011). Parent-child interaction therapy in a community setting: Examining outcomes, attrition, and treatment setting. *Research on Social Work Practice, 21*(6), 689–698. <https://doi.org/10.1177/1049731511406551>
- Lapierre, S., Côté, I., Lambert, A., Buetti, D., Lavergne, C., Damant, D., & Couturier, V. (2018). Difficult but close relationships: Children's perspectives on relationships with their mothers in the context of domestic violence. *Violence Against Women, 24*(9), 1023–1038. <https://doi.org/10.1177/1077801217731541>
- Leite, W. (2017). *Practical propensity score methods using R*. SAGE.
- Leve, L. D., & Cicchetti, D. (2016). Longitudinal transactional models of development and psychopathology. *Development and Psychopathology, 28*(3), 621–622. <https://doi.org/10.1017/S0954579416000201>
- Levendosky, A. A., Lannert, B., & Yalch, M. (2012). The effects of intimate partner violence on women and child survivors: An attachment perspective. *Psychodynamic Psychiatry, 40*(3), 397–433. <https://doi.org/10.1521/pdps.2012.40.3.397>

- McDonald, R., Jouriles, E. N., Ramisetty-Mikler, S., Caetano, R., & Green, C. E. (2006). Estimating the number of American children living in partner-violent families. *Journal of Family Psychology, 20*(1), 137–142. <https://doi.org/10.1037/0893-3200.20.1.137>
- McIntosh, J. E., Tan, E. S., Levendosky, A. A., & Holtzworth-Munroe, A. (2019). Mothers' experience of intimate partner violence and subsequent offspring attachment security ages 1–5 years: A meta-analysis. *Trauma, Violence, & Abuse, 10*(1), 117–124. <https://doi.org/10.1177/1524838019888560>
- Moylan, C. A., Herrenkohl, T. I., Sousa, C., Tajima, E. A., Herrenkohl, R. C., & Russo, M. J. (2010). The effects of child abuse and exposure to domestic violence on adolescent internalizing and externalizing behavior problems. *Journal of Family Violence, 25*, 53–63. <https://doi.org/10.1007/s10896-009-9269-9>
- O'Connor, J., & Nepomnyaschy, L. (2019). Intimate partner violence and material hardship among urban mothers. *Violence Against Women, 26*(9), 935–954. <https://doi.org/10.1177/1077801219854539>
- Øverlien, C., & Holt, S. (2019). Letter to the Editor: Research on children experiencing domestic violence. *Journal of Family Violence, 34*(1), 65–67. <https://doi.org/10.1007/s10896-018-9997-9>
- Patterson, G. R. (1982). *Coercive family process*. Castalia.
- Pinquart, M. (2017). Associations of parenting dimensions and styles with externalizing problems of children and adolescents: An updated meta-analysis. *Developmental Psychology, 53*(5), 873–932. <https://doi.org/10.1037/dev0000295>
- Postmus, J. L., Huang, C., & Mathisen-Stylianou, A. (2012). The impact of physical and economic abuse on maternal mental health and parenting. *Children and Youth Services Review, 34*(9), 1922–1928. <https://doi.org/10.1016/j.childyouth.2012.06.005>
- Reef, J., Diamantopoulou, S., van Meurs, I., Verhulst, F. C., & van der Ende, J. (2011). Developmental trajectories of child to adolescent externalizing behavior and adult DSM-IV disorder: Results of a 24-year longitudinal study. *Social Psychiatry and Psychiatric Epidemiology, 46*(12), 1233–1241.
- Renner, L. M., & Boel-Studt, S. (2013). The relation between intimate partner violence, parenting stress, and child behavior problems. *Journal of Family Violence, 28*(2), 201–212.
- Sameroff, A. J., & Mackenzie, M. J. (2003). Research strategies for capturing transactional models of development: The limits of the possible. *Development and Psychopathology, 15*(3), 613–640.
- Sanders, M. R., & Pickering, J. A. (2017). The prevention of child maltreatment: The case for a public health approach to behavioural parenting intervention. In L. Dixon, D. F. Perkins, C. Hamilton-Giachritsis, & L. A. Craig (Eds.), *The Wiley handbook of what works in child maltreatment* (pp. 163–175). John Wiley & Sons, Ltd. <https://doi.org/10.1002/9781118976111.ch11>
- Serbin, L. A., Kingdon, D., Ruttle, P. L., & Stack, D. M. (2015). The impact of children's internalizing and externalizing problems on parenting: Transactional processes and reciprocal change over time. *Development and Psychopathology, 27*, 969–986. <https://doi.org/10.1017/S0954579415000632>
- Shadish, W. R. (2013). Propensity score analysis: Promise, reality and irrational exuberance. *Journal of Experimental Criminology, 9*(2), 129–144. <https://doi.org/10.1007/s11292-012-9166-8>
- Smith, S. G., Chen, J., Basile, K. C., Gilbert, L. K., Merrick, M. T., Patel, N., Walling, M., & Jain, A. (2017). *The National Intimate Partner and Sexual Violence Survey (NISVS): 2010–2012 state report*. National Center for Injury Prevention and Control.

- Straus, M., Hamby, S., Boney-McCoy, S., & Sugarman, D. (1996). The revised Conflict Tactics Scales (CTS2): Development and preliminary psychometric data. *Journal of Family Issues, 17*(3), 283–316. <https://doi.org/10.1177/019251396017003001>
- Straus, M. A., & Stewart, J. H. (1999). Corporal punishment by American parents: National data on prevalence, chronicity, severity, and duration, in relation to child and family characteristics. *Clinical Child and Family Psychology Review, 2*(2), 55–70. <https://doi.org/10.1023/A:1021891529770>
- Stuart, E. A. (2010). Matching methods for causal inference: A review and a look forward. *Statistical Science, 25*(1), 1–21. <https://doi.org/10.1214/09-STS313>
- Stuart, E. A., & Green, K. M. (2008). Using full matching to estimate causal effects in non-experimental studies: Examining the relationship between adolescent marijuana use and adult outcomes. *Developmental Psychology, 44*(2), 395–406. <https://doi.org/10.1037/0012-1649.44.2.395>
- Taylor, Z. E., Eisenberg, N., Spinrad, T. L., & Widaman, K. F. (2013). Longitudinal relations of intrusive parenting and effortful control to ego-resiliency during early childhood. *Child Development, 84*(4), 1145–1151. <https://doi.org/10.1111/cdev.12054>
- Timmer, S. G., Ware, L. M., Urquiza, A. J., & Zebell, N. M. (2010). The effectiveness of parent-child interaction therapy for victims of interparental violence. *Violence and Victims, 25*(4), 486–503.
- Vu, N. L., Jouriles, E. N., McDonald, R., & Rosenfield, D. (2016). Children's exposure to intimate partner violence: A meta-analysis of longitudinal associations with child adjustment problems. *Clinical Psychology Review, 46*, 25–33.
- Winston, P. W., Angel, R. J., Burton, L. M., Chase-Lansdale, P. L., Cherlin, A. J., Moffitt, R. A., & Wilson, W. (1999). *Welfare, children, and families: Overview and design*. [http://web.jhu.edu/threecitystudy/images/publications/02\\_overviewanddesign.pdf](http://web.jhu.edu/threecitystudy/images/publications/02_overviewanddesign.pdf)
- Zarling, A. L., Taber-Thomas, S., Murray, A., Knuston, J. F., Lawrence, E., Valles, N. L., DeGarmo, D. S., & Bank, L. (2013). Internalizing and externalizing symptoms in young children exposed to intimate partner violence: Examining intervening processes. *Journal of Family Psychology, 27*(6), 945–955. <https://doi.org/10.1037/a0034804>

## Author Biographies

**Gerard Chung** is a doctoral student in the School of Social Work at the University of North Carolina at Chapel Hill. He is an Injury and Violence Prevention Fellow supported by the UNC Injury Prevention Research Center (R49/CE14002479) and also an Ee Peng Liang Scholar at the National University of Singapore (NUS). He holds a Master's in Social Work from the NUS. His research interests include child maltreatment and intimate partner violence.

**Todd M. Jensen, MSW, PhD**, is a research assistant professor in the School of Social Work and a Family Research and Engagement Specialist in the Jordan Institute for Families at the University of North Carolina at Chapel Hill. As a researcher, he is committed to promoting family resilience and youth well-being, and transforming the systems that best support them. His work includes a focus on developing strategies to support families experiencing shifts in structure, particularly when parental figures transition into or out of a household, and preventing family maltreatment among active-duty military personnel.

**Anna Parisi, MSW**, is a doctoral candidate in the School of Social Work at the University of North Carolina at Chapel Hill, where she also holds a Master's in Social Work. Her research interests include justice-involved women, substance misuse, and trauma-informed services.

**Rebecca J. Macy, MSW, PhD**, is the L. Richardson Preyer Distinguished Chair for Strengthening Families at the University of North Carolina at Chapel Hill School of Social Work. She joined the UNC faculty in 2002, after receiving her doctoral degree in social welfare from the University of Washington in Seattle. She is currently the Editor-in-Chief for the *Journal of Family Violence*. She has 18 years of experience conducting community-based studies that focus on intimate partner violence, sexual violence, and human trafficking. She has dedicated her research efforts to violence prevention and to improving services for violence survivors.

**Paul Lanier, MSW, PhD**, is a Wallace Kuralt Distinguished Associate Professor at the University of North Carolina at Chapel Hill School of Social Work. He received his doctoral degree from the Brown School at Washington University in St. Louis. He is currently the associate director for Child and Family Well-Being at the UNC Jordan Institute for Families. He is an expert in developing, evaluating, and scaling-up evidence-based prevention programs in child welfare, mental health, and early childhood systems.