Published in final edited form as:

Child Dev. 2014 November ; 85(6): 2263–2278. doi:10.1111/cdev.12279.

Interparental Violence and Childhood Adjustment: How and Why Maternal Sensitivity is a Protective Factor

Livia G. Manning,

Department of Clinical and Social Sciences in Psychology, University of Rochester

Patrick T. Davies, and

Department of Clinical and Social Sciences in Psychology, University of Rochester

Dante Cicchetti

Institute of Child Development, University of Minnesota and Mt. Hope Family Center, University of Rochester, Rochester, NY

Abstract

This study examined sensitive parenting as a protective factor in relations between interparental violence and children's coping and psychological adjustment. Using a multi-method approach, a high risk sample of 201 two-year olds and their mothers participated in three annual waves of data collection. Moderator analyses revealed that sensitive parenting buffered the risk posed by interparental violence on children's changes in externalizing and prosocial development over a two year period. Tests of mediated moderation further indicated that sensitive parenting protected children from the vulnerability of growing up in a violent home through its association with lower levels of children's angry reactivity to interparental conflict. Results highlight the significance of identifying the mechanisms that mediate protective factors in models of family adversity.

Although exposure to interparental violence (IPV) has been associated with a wide array of social, emotional, academic, and mental health difficulties, many children exposed to IPV do not experience any noticeable impairment (Katz, Hessler, & Annett, 2007; Kitzmann, Gaylord, Holt, & Kenny, 2003). For example, meta-analytic findings indicate that a substantial minority of IPV exposed children show average or better-than-average developmental functioning (Kitzmann et al., 2003). Given that little is known about the mechanisms that support children's resilience in the contexts of IPV, research is needed to identify the moderating factors that explain variability in the adjustment of children from violent homes. In light of the well-established role of parents as socialization agents, sensitive parenting may be a key factor in helping children to successfully contend with risks of IPV. Accordingly, the first objective of this paper is to examine maternal sensitive parenting as a protective factor in the relation between IPV and children's externalizing and prosocial behaviors. In accord with models of child-rearing (Belsky, 1984; Dix, 2000), sensitive parenting is defined as the capacity to organize interactions and responses in a way that supports children's developmental needs of security, affiliation, autonomy, and

exploration. Therefore, as a higher-order, multi-dimensional construct, sensitivity encompasses a warm and accepting orientation toward children that reflects attunement to their well-being and perspectives. In the stressful, emotion-laden context of IPV, sensitive parenting practices may specifically promote children's resilience by reducing the intensity of children's angry responses to interparental conflict. Thus, in moving beyond simply identifying protective factors, our second aim is to examine children's diminished angry reactivity to interparental conflict as a protective mechanism mediating the moderating effects of sensitive parenting.

Findings on the link between IPV and dimensions of sensitive parenting have been mixed. Some studies have specifically reported a relation between IPV and insensitive parenting dimensions characterized by hostility, intrusiveness, and unresponsiveness (e.g., Levendosky, Leahy, Bogat, Davidson, & von Eye, 2006; Owen, Thompson, & Kaslow, 2006), whereas other research findings have failed to identify associations between severity of IPV and comparable indices of parental insensitivity (e.g., Huth-Bocks & Hughes, 2008; Kalil, Tolman, Rosen, & Gruber, 2003). Further complicating the picture, other studies have found support for a compensatory effect whereby IPV prompts parents to engage in more sensitive (e.g., attentive, responsive) parenting as a means to offset risk for children growing up in violent homes (Levendosky, Huth-Bocks, Shapiro, & Semel, 2003). Inconsistencies in the findings raise the possibility that maternal sensitivity may moderate rather than mediate associations between IPV and children's adjustment. Supporting this thesis, developmental psychopathology models have postulated that positive mother-child relationship characteristics can serve as buffers of family discord (Alink, Cicchetti, Kim, & Rogosch, 2009) and, more specifically, IPV (Davies, Winter, & Cicchetti, 2006). Further, the limited empirical research supports the hypothesis that positive parenting characteristics protect children exposed to IPV against developing psychological difficulties. Sensitive parenting dimensions characterized by maternal warmth and support have been empirically identified as protecting against the development of externalizing problems (Skopp et al., 2007) and memory impairments (Jouriles, Brown, McDonald, Rosenfield, Leahy, & Silver, 2008) for children exposed to IPV. Likewise, as another marker of sensitive parenting, parental coaching of emotion buffered children in domestically violent families from exhibiting internalizing and externalizing problems (Katz & Windecker-Nelson, 2006).

In spite of the growing evidence designating maternal sensitivity as a protective factor in violent homes, charting the developmental processes resulting from the interplay between IPV and maternal sensitivity remains a significant gap in the literature. First, studies on the protective effects of parenting in homes characterized by IPV have primarily relied on cross-sectional designs (Katz & Windecker-Nelson, 2006; Jouriles et al., 2008; Skopp et al., 2007). Therefore, questions remain about the directionality of processes operating in the multivariate associations and whether positive parenting practices may serve as an enduring protective factor over relatively longer developmental spans (e.g., years). To address this gap, the longitudinal design of the present study is designed to advance knowledge on the directionality and timing of the moderating effects of sensitive parenting in links between IPV and children's psychological adjustment. As a way to maximize power to examine maternal sensitivity as a protective factor, our measurement battery was also designed to more fully capture the multifaceted nature of sensitive caregiving than many prior studies

through observational indices of secure-base provisions, warmth, child-centeredness, interactional synchrony, and low harshness.

Second, the limited literature on the protective role of parenting in homes marked by IPV has exclusively focused on cataloguing parenting characteristics as moderators. However, family models have proposed that the identification of protective factors is the first, rather than last, step in scientific inquiry. Identifying moderating factors that address *who* is least at risk for adjustment difficulties can be usefully followed up by efforts to address *how* or *why* parenting confers developmental advantages to children from violent homes in mediational analyses (Davies, Winter, & Cicchetti, 2006). Accordingly, a second objective of our paper is to explore children's reactivity to interparental conflict as a mechanism mediating the protective effects of sensitive parenting. Consistent with theories of interparental conflict (Crockenberg & Langrock, 2001a; Davies et al., 2006; Kingsfogel & Grych, 2004), emotional reactivity is defined by the organization, multiplicity, duration, quality, and frequency of emotional (e.g., angry) responses.

Although theories on destructive interparental conflict differ in their emphasis on specific emotions as mediating mechanisms, they all share the premise that child emotional reactivity to interparental conflict is a key explanatory mechanism underlying the vulnerability experienced by children exposed to IPV (Crockenberg & Langrock, 2001a; Davies & Cummings, 1994; Grych & Fincham, 1990; Margolin, Oliver, & Medina, 2001). In support of this hypothesis, research has identified significant associations between destructive interparental conflict, children's patterns of emotional reactivity to interparental conflict, and their adjustment problems (Crockenberg & Langrock, 2001b; Rhoades, 2008). Specific emotions theory and social learning perspectives more specifically propose that angry reactivity to conflict is a salient mechanism in the intergenerational transmission of maladjustment in domestically violent families (Crockenberg & Langrock, 2001a; Dumas, Margolin, & John, 1994; Jenkins, 2000). Continuity of aggression within families across multiple generations has been well documented with prolonged, intense anger identified as a predictor of violence perpetration (e.g., Delsol & Margolin, 2004; Murphy et al., 2007). In addition, children's dispositions to experience anger are proposed to reduce their prosocial behavior by dampening empathic responding (Roberts & Strayer, 1996; Strayer & Roberts, 2004), constraining emotion understanding and social perspective taking (Garner, Dunsmore, & Southam-Gerrow, 2008), and undermining the ability to enact interpersonal helping behaviors (Garner, Dunsmore, & Southam-Gerrow, 2008; Roberts & Strayer, 1996). Consistent with this conceptualization, heightened angry responses to interpersonal challenges has been linked with lower prosocial functioning in childhood (Garner et al., 2008; Roberts & Strayer, 1996).

Conceptualizations of emotion further support our hypothesis that sensitive parenting operates as a protective factor by altering children's tendencies to experience greater angry responses to conflict. Sensitive parenting in early childhood is postulated to be an external process that may, over time, reduce the initiation, intensity, and duration of negative emotions, including anger (Eisenberg et al., 1998; Morris, Silk, Steinberg, Myers, & Robinson, 2007). Although experiencing anger is an unavoidable part of early childhood, sensitive and child-focused parenting may reduce children's angry reactivity by increasing

their understanding and tolerance of aversive family experiences (Morris et al., 2007). In the specific context of IPV, parental sensitivity to the needs of the child may offset the spread of negative emotionality across family subsystems and interrupt the adoption of aggressive tendencies (e.g., Morris et al., 2007). Therefore, we hypothesize that sensitive parenting will play a protective role in associations between IPV and child maladjustment by decreasing children's likelihood of experiencing intense, prolonged anger in the context of subsequent interparental conflicts.

The decision to focus on the toddler and preschool age period was guided by theoretical considerations. In delineating early childhood as a time of vulnerability to IPV exposure, follow up tests on the moderating effects of age in a meta-analysis revealed particularly pronounced associations between IPV and child problems during early childhood (Kitzmann et al., 2003). Compounding this risk, evidence suggests that young children are exposed to disproportionately higher rates of IPV relative to their school-aged counterparts (Fantuzzo, Boruch, Beriama, Atkins, & Marcus, 1997). In this paper, we specifically examined children's externalizing and prosocial behaviors in light of their central significance in defining adaptive and maladaptive trajectories during the preschool period. The emergence of individual differences in the level and change in children's disruptive problems during the early childhood years have been shown to forecast children's social, emotional, and academic difficulties (Arsenio, Cooperman, & Lover, 2000; Snyder, Schrepferman, McEachern, & DeLeeuw, 2010). Conversely, the emergence of prosocial skills across the preschool period is a stage-salient ability reflecting successful integration of multiple dimensions of adaptive cognitive and emotional development (Sroufe et al., 2005). Prosocial skills are consistently implicated in successful transitions into the early school years, as they are linked with social competence, peer acceptance, and academic achievement (Arnold et al., 2012; Stormshak & Webster-Stratton, 1999).

In summary, this study is designed to extend the literature in several ways. First, against the predominant landscape of cross-sectional studies on the moderating role of parenting in developmental models of IPV, this study is the first to specifically examine whether maternal sensitivity moderates prospective associations between IPV and changes in child psychological adjustment. We specifically examine whether experiencing high levels of maternal sensitivity at age two served as a protective factor in associations between IPV and subsequent changes in children's functioning over a two year period. Second, guided by conceptualizations of the role of parenting in children's emotional experiences, we address the question of why maternal sensitivity serves as a protective factor by examining whether children's diminished anger reactivity to interparental conflict over a one year period mediates the moderating effects of parenting. Third, consistent with resilience models, we examine the applicability of the moderation and mediated moderation models across both positive (i.e., prosocial behavior) and negative (i.e., externalizing problems) child outcomes. To rigorously address these questions, we utilized a multi-method (i.e., observations, interviews, questionnaires, q-sort ratings), multi-informant (i.e., maternal reports, experimenter reports, trained observer ratings) approach nested within a three wave longitudinal design that temporally disentangles the proposed interplay among the predictors at Wave 1 (i.e., IPV, maternal sensitivity), latent changes in the mediator (i.e., angry reactivity to interparental conflict) from Wave 1 to 2, and the latent changes in child

adjustment outcomes from Wave 1 to Wave 3. We also considered a range of covariates that may impact the interrelationships of the primary variables or pathways in our proposed models, including child gender (Jouriles & Norwood, 1995), temperament (Shiner & Caspi, 2002), maternal race (McLoyd, 1998), socioeconomic status (SES; Bradley & Corwyn, 2002), and intimate partner relationship instability (Davies, Manning, & Cicchetti, 2010).

Method

Participants

Participants were 201 mother-toddler dyads from a Northeastern city. Our recruitment aim was to obtain a racially diverse sample of families experiencing a wide array of levels of interparental violence that simultaneously limited the confounding role of socioeconomic characteristics (Fergusson & Horwood, 1998; Kitzmann et al., 2003). Therefore, in the first step, we recruited participants through multiple agencies serving disadvantaged children and families, including but not limited to: Women, Infants, and Children agency; the county family court system; and the Temporary Assistance to Needy Families rosters from the Department of Human and Health Services. In the second step, we administered the abbreviated version of the Physical Assault Subscale of the Conflict Tactics Scale 2 (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996; see Measures for a description) to ensure that roughly equal proportions of participating mothers fell within three bands of an interparental violence continuum: (a) no violence (i.e., 40%), (b) mild/moderate physical violence (i.e., 24%), and (c) severe physical violence (i.e., 36%) in the interpartner relationship (for procedural details, see the CTS2 manual; Straus et al., 1996). Inclusionary criteria stipulated that the female caregiver was the biological mother and the male partner, mother, and toddler had regular face-to-face contact as a family unit over the past year (i.e., over 25 days during the past year).

Median annual income for the family household was \$18,300 (US) per year and a substantial minority of mothers (30%) and their partners (24%) did not complete high school. Most families received public assistance (95%) and were impoverished according to the US Federal Poverty Guidelines (99.5%). The mean age of the children at Wave 1 was 26 months ($SD = 1.69$), with 44% of the sample consisting of girls ($n = 92$). The majority of participants were Black (56%), followed by smaller proportions of family members who identified as White (23%), Latino (11%), Multi-Racial (7%), and "Other" (3%). The retention rate from Wave 1 to Wave 2 was 83% ($n = 166$). Due to the longer amount of time to locate transient parent-child dyads, a greater number of dyads returned for the third wave, increasing the retention from Wave 1 to Wave 3 to 87% ($n = 174$). At the first wave of assessment, mothers were mostly in a non-married intimate relationship (53%), followed by lower percentages of married (28%) and divorced or separated (19%) relationships. Intimate relationship dissolution was relatively high for the remainder of the study (37% between Waves 1 and 2; 35% between Waves 2 and 3). During this same time frame, the number of mothers reporting the formation of new serious intimate relationship ranged from 37% to 39%. New cohabitations during each of these years were 21% from Waves 1 to 2 and 28% from Wave 2 to Wave 3.

Procedures

Data were collected over three waves each spaced approximately one year apart. At each wave, mothers and their children made multiple visits to the laboratory and participated in a range of tasks including questionnaires, observational tasks, and interviews. At Wave 1, mothers completed questionnaires to assess interparental violence. Mothers and children also participated in a problem-solving task that was videorecorded for later coding of maternal sensitivity. During Waves 1 and 2, mothers participated in a semi-structured interview designed to assess their children's emotional reactivity to interparental conflicts. Additionally, research assistants who spent time with the participants completed assessments of child adjustment at the end of the first and third waves of data collection. Participating mothers were paid between \$25 and \$75 depending on the specific visit and children were given a small toy at the end of each visit.

Measures

Interparental violence—IPV was assessed by three measures completed during Wave 1. First, mothers completed the physical aggression subscale of the Conflict and Problem-Solving Scales (CPS; Kerig, 1996). The physical aggression subscale consists of 14 items indicating the frequency which children are exposed to both mothers and their partners engaging in physically aggressive conflict behaviors. Frequency of the behaviors are reported in Likert-type scales ranging from 0 (*never*) to 3 (*often*). Examples of items on the CPS physical aggression subscale include “slap” and “beat up partner” (Kerig, 1996). Internal consistency for the physical aggression subscale was .92. The final two indicators of IPV were taken from the 24-item *Physical Assault* and 12-item *Injury* subscales of the Revised Conflict Tactics Scale (CTS2; Straus et al., 1996). For the two scales mothers reported on her and her partner's use of physically aggressive conflict behaviors (e.g., “punched”, “choked”, or “kicked”) as well as injuries sustained during conflicts, such as needing to see a doctor or having broken bones. Following recommended scoring guidelines (Straus et al., 1996), prevalence scores were calculated for each of the two scales based on the sum of the occurrences of specific aggressive acts (1 = act occurred one or more times; 0 = specific act did not occur) over the past year. Internal consistency was .92 for the Physical Assault subscale and .84 for the Injury subscale.

Maternal Sensitivity—Sensitive parenting was assessed at Wave 1 from observer reports of maternal behaviors during a series of mother-child problem-solving tasks adapted from Matas, Arend, & Sroufe (1978). Children were presented with four increasingly challenging problem-solving tasks that were difficult for children to complete without some adult assistance. The four tasks, which were each five minutes in duration, included: (a) a shape sorter, (b) a wooden puzzle, (c) a task requiring children to place a weighted block on one end of a lever in order to gain access to a toy encased in a large plexiglass box, and (d) a two-step problem which required children to break a piece of balsa wood in half and use it as a tool for retrieving a ball lodged in a clear plastic tube. Mothers were instructed to let the child attempt to solve each problem before offering any assistance. Codes for maternal behavior were derived from the Iowa Family Interaction Rating Scales (IFIRS, Melby & Conger, 2001) and the Caregiver Codes (CC; Matas et al., 1978; Sroufe et al., 2005). The IFIRS codes, which ranged in value from (1) not at all characteristic to (9) mainly

characteristic, included maternal *warmth* (e.g., smiling at child, giving positive affirmations), *harshness*, reversed-scored (e.g., derisive comments), *child-centeredness* (e.g., appropriately attuned to child's pace and progress), and *relationship quality* (e.g., mother-child interactional synchrony). As the final code drawn from the CC, coders rated *caregiver supportive presence* along a Likert-type scale ranging from (1) meets no criteria to (7) meets all criteria. Examples of criteria include functioning as secure base, attentiveness to the child, encouraging child, and providing assistance when requested. Interrater reliability between two trained coders was calculated from random overlap of 20% of the participants. Intraclass correlation coefficients ranged from .83 to .90 across the five codes (all $ps < .001$). Due to high correlations between the codes, a composite measure of maternal sensitivity was computed by averaging standardized scores of the five codes. Internal consistency of the composite was .95.

Angry Reactivity—Children's angry reactivity to interparental conflict, operationalized as intense, prolonged emotional reactions, was assessed through the *Child Reactivity Module* of the Interparental Disagreement Interview in Waves 1 and 2 (IDI; Davies et al., 2013; Davies, Sturge-Apple, Cicchetti, Manning, & Zale, 2009). Administered by trained interviewers, the IDI is a semi-structured interview in which mothers report on their children's emotional and behavioral reactions to interparental disagreements. The interview consists of a series of open-ended questions about children's reactions and responses during and after interparental conflicts. For example, queries such as "When your child sees or overhears these disagreements, how does he/she respond?" are followed by a series of probes to obtain richer descriptions of child behavioral reactions to interparental conflict. Audiovisual records of the narratives generated from the interview are subsequently coded by trained research assistants.

Consistent with the definition of emotional reactivity as reflecting elements of both initial emotional responding and its regulation over time in contexts of interparental conflict, two measures reflecting these dimensions were specifically utilized to assess children's angry reactivity to interparental conflict. First, a behavioral *tally* of angry reactivity was assessed by summing coder ratings of the presence (1) or absence (0) of angry or aggressive child reactions in two conflict periods: during and immediately after the conflict ($range = 0-4$). Whereas anger was characterized by maternal descriptions of behaviors denoting frustration, irritation, and anger (e.g., clenching teeth, stomping feet), aggression was defined as verbal or physical hostility directed toward the self or others (e.g., yelling at parents, throwing or kicking toys). Second, coders rated the maternal narrative descriptions of child behavioral reactions during interparental conflicts along a seven-point continuous rating scale, ranging from 0 (i.e., no signs of anger) to 6 (i.e., frequent or severe signs of anger that suggested a pattern of dysregulation). Interrater reliabilities, which were based on overlap of two coders for each wave on 25% of the audiovisual records, ranged from .89 to .98. Past research has supported the validity of the IDI for assessing child reactivity to interparental conflict through its association with established measures of interparental conflict and child functioning (Davies et al., 2013; Davies et al., 2009).

Child Outcomes—At Waves 1 and 3, the two experimenters who spent the most time with the children during the visits completed the California Child Q-Set (CCQ- Block & Block, 1980). For each of the multiple visits at the two measurement occasions, experimenters kept detailed written records on multiple dimensions of child behavior and functioning based on approximately eight hours of cumulative contact with children during the visit tasks, transition periods, and, in most cases, transportation between homes and the research center. Using these records and experiences, experimenters sorted 100 statements into nine piles based on how descriptive the statements were of each target child. Expert prototype ratings of both prosocial and externalizing profiles were used from established psychometric properties of the CCQ to assess child functioning on each dimension. Consistent with prior research (e.g., Shields & Cicchetti, 1997), items from the two highest loading piles (9 = “most characteristic” and 8 = “quite characteristic”) on the prototype profiles were summed together to form the Q-sort measures of each form of adjustment at each wave. Internal consistency across the waves for both experimenters ranged from .83 to .87 for externalizing problems and from .75 to .82 for prosocial functioning.

Covariates—Child gender, temperament, maternal race, socioeconomic status, and intimate partner relationship instability were treated as covariates in the analyses. First, maternal reports on the Soothability, Anger, and Discomfort subscales from the Child Behavior Questionnaire during the first wave were used as manifest indicators of a latent construct of temperamental negative emotionality (CBQ; Rothbart, Ahadi, Hersey, & Fisher, 2001). The 13-item Soothability subscale assesses the extent to which a child is able to recover from distress. Internal consistency of the subscale was $\alpha = .73$ and was reverse scored (i.e., low soothability) to be consistent with the scoring of the other scales and the higher order index of negative emotionality. The Anger/Frustration subscale consists of 13 items designed to measure negative affect resulting from blocked goals or interruption of activities ($\alpha = .76$), whereas the 12 items on the Discomfort subscale index experiences with negative affect resulting from sensory stimulation ($\alpha = .61$). The CBQ is a psychometrically sound and widely used assessment of temperament (Rothbart et al., 2001; Shiner & Caspi, 2002). Second, three indicators of SES (maternal and paternal education in years; earned annual household income) were obtained from maternal responses from a demographic interview administered at Wave 1. Third, consistent with prior assessments (Davies, Manning, & Cicchetti, 2013), intimate relationship instability was measured through maternal reports of new relationship formation, relationship dissolution, and new cohabitation arrangements occurring each year over the three waves of data collection. Responses were classified as 0 (no occurrences), 1 (one occurrence), or 2 (two or more occurrences) for each of the questions and summed across all waves to create an intimate partner instability variable ($M = 3.86$; $SD = 3.66$). Finally, maternal race (1 = Black; 2 = White) and child gender (1 = boys; 2 = girls) were also included as covariates.

Results

Descriptive Analyses

All manifest variables and indicators were examined for normality. The CTS Injury scale was positively skewed, so its logarithmic transformation was used in all subsequent

analyses, although the descriptives reflect the untransformed values. The correlations of the primary variables are shown in Table 1. Means and standard deviations reflect uncentered values. Indicators within each of the proposed latent constructs (i.e., IPV, angry reactivity, child adjustment outcomes) were all moderately to highly correlated, with coefficients ranging from .55 to .84. Analysis of the missing data for the primary variables and covariates across all waves (*Median* = 7.5%, *Range* = 0 – 22%) indicated that data were missing completely at random (MCAR) using Little's MCAR test, $\chi^2(282, N = 201) = 301.84, ns$ (Little, 1988; Schlomer, Bauman, & Card, 2010). To retain the full sample for the primary analyses, missing data were estimated with Amos 18.0 using the Full Information Maximum Likelihood approach, resulting in a final sample size of 201 for all analyses.

Maternal Sensitivity as a Moderator of Links Between IPV and Child Adjustment

As a first step toward testing our mediated moderation model, we examined maternal sensitivity as a moderator of links between IPV and subsequent changes in child functioning prior to the inclusion of angry reactivity as a mediator. As a way to examine individual differences in changes in children's prosocial and externalizing development over time, latent difference score (LDS) modeling was utilized (Ferrer, Balluerka, & Widaman, 2008; McArdle, 2009). Following standard procedures, the LDS model consisted of estimating the latent growth parameter of each form of child adjustment over the two waves while also controlling for the initial level of adjustment through specification of an autoregressive path. In highlighting its flexibility, the LDS approach allows for specification of multiple predictors of individual differences in changes in outcomes over time (Maikovich et al., 2008; McArdle, 2009).

Toward this goal, we specified paths between IPV, maternal parenting sensitivity, and their multiplicative interaction in predicting LDS indices of change in prosocial behavior and externalizing symptoms from Wave 1 to Wave 3. SES, maternal race, marital status, intimate partner relationships instability, and child gender and temperamental negative emotionality were also included as covariates in predicting change in prosocial and externalizing behaviors as well as change in angry reactivity. Following procedures outlined by Marsh and colleagues (2004), indicators for latent interaction terms were computed from the cross products of the sensitive parenting composite and each of the three IPV indicators. Both predictors were centered prior to creation of the interaction term. Correlations were further specified between all of the Wave 1 predictors (i.e., IPV, maternal sensitivity, IPV $\times$ sensitivity interaction, the covariates, W1 angry reactivity, W1 externalizing, and W1 prosocial) and between the externalizing and prosocial change estimates at Wave 3. Paths between W2 angry reactivity and changes in prosocial and externalizing behavior were also constrained to 0 in this model in order to test the maternal sensitivity as a moderator of child outcomes prior to inclusion of the mediational paths. To control for shared method variance of experimenter reports, ratings from the same experimenter within each wave were correlated across prosocial and externalizing manifest indicators. Overall, the model provided an acceptable fit for the data, $\chi^2(273, N = 201) = 371.71, p < .01, \chi^2/df$ ratio = 1.36, *RMSEA* = .04, *CFI* = .96. Due to the complexity of the model, the results of the measurement portion of model are presented in Table 2. Supporting the measurement model, all the loadings were significant (all *ps* < .001) and moderate to high in magnitude.

The structural portion of the model is presented in Figure 1. For clarity of presentation, only significant structural paths and correlations among the primary constructs and covariates are shown. The results indicated that IPV did not significantly predict changes in externalizing, $\beta = .05$, *ns*, or prosocial behaviors, $\beta = -.04$, *ns*. Likewise, maternal sensitivity was unrelated to changes in child externalizing problems, $\beta = -.17$, *ns*, or prosocial behavior, $\beta = .08$, *ns*, over the two year period. IPV and maternal sensitivity were both concurrently associated with children's angry reactivity at Wave 1, $\beta = .25$, $p < .01$, and $\beta = -.17$, $p < .05$, respectively, but neither were predictive of children's change in angry reactivity from Wave 1 to Wave 2. None of the covariates predicted any of the change indices in children's functioning, but they did evidence several associations with children's angry reactivity, prosocial behavior, and externalizing symptoms. Although space limitations preclude a description of these associations in the text, Figure 1 provides more details on these findings. All correlations are in the expected direction.

As the test of our primary hypothesis, the interaction between sensitive parenting and IPV predicted latent changes from Waves 1 to 3 in children's externalizing symptoms, $\beta = -.27$, $p < .01$, and prosocial behavior, $\beta = .26$, $p < .01$. To supplement graphical plots of the interactions portrayed in Figures 2a and 2b, we conducted simple slope analyses of IPV at one standard deviation above and below the mean of maternal sensitivity. The y-axis of the graphs reflects intercept estimates of change in children's externalizing and prosocial behavior across a two-year period, controlling for initial levels of the behaviors (i.e., positive slopes indicate increases in the behavior, while negative slopes represent decreases). Consistent with hypotheses regarding maternal sensitivity as a protective factor, IPV was associated with significant increases in externalizing behavior at low ($b = 1.06$, $p < .01$) but not high ($b = -.64$, *ns*) levels of maternal sensitivity (see Figure 2a). In reflecting a similar pattern for positive adjustment, IPV predicted decreases in children's prosocial behavior at low ($b = -.53$, $p < .05$) but not high ($b = .37$, *ns*) levels of sensitive parenting (see Figure 2b). To further characterize the form of moderation, simple slope analyses of maternal sensitivity were also computed at ± 1 standard deviation from the centered mean of IPV. Offering further support for the protective form of the moderating effects, maternal sensitivity was associated with increases in prosocial behavior, $b = 2.92$, $p = .01$, and decreases in externalizing behavior, $b = -7.04$, $p < .01$, only at high levels of IPV.

Mediated Moderation Model

To address our second aim of examining how or why maternal sensitivity functions as a protective factor, we specified a mediated moderation model that examined children's angry reactivity to interparental conflict as an explanatory mechanism of the moderating effects of maternal sensitivity. In addition to retaining the structural paths and correlations estimated in the moderator model tested in our first analytic step, children's angry reactivity at Wave 2 was further specified as a predictor of LDS indices of change in their prosocial and externalizing symptoms over time. Wave 2 angry reactivity, rather than change in angry reactivity was specified as a predictor based on established LDS approaches to testing relations between developmental factors over multiple time points (e.g., Dogan, Stockdale, Widaman, & Conger, 2010). The last column of Table 2 provides the standardized coefficients of the manifest indicators onto their respective latent constructs for the mediated

moderation model. All loadings were significant (all $ps < .001$) and moderate to high in magnitude.

The structural model, which is shown in Figure 3, provided a good representation of the data, $\chi^2 (271, N = 201) = 359.05, p < .05, \chi^2/df \text{ ratio} = 1.33, RMSEA = .04, CFI = .96$. In support of the first set of requirements for demonstrated mediated moderation, the $IPV \times$ maternal sensitivity interaction term at Wave 1 predicted change in children's angry reactivity to interparental conflict one year later at Wave 2, $\beta = -.29, p = .01$. As part of the second link in the proposed mediational chain, children's levels of angry reactivity at Wave 2, in turn, predicted increases in their externalizing symptoms, $\beta = .21, p < .01$, and decreases in their prosocial behavior, $\beta = -.20, p < .05$. To provide a more direct test of mediated moderation, we conducted bootstrapping tests with the PRODCLIN software program (MacKinnon, Fritz, Williams, & Lockwood, 2007). Supporting mediated moderation, the results indicated that the indirect pathways involving the (a) interaction of IPV and maternal sensitivity and changes in children's angry reactivity from W1 to Wave 2 and (b) W2 levels of angry reactivity and their forms of psychological adjustment were significant for both prosocial functioning, 95% CI = .007 to .24, and externalizing problems, 95% CI = -.032 to -.45.

Support for mediated moderation also requires demonstrating that the moderating effect of maternal sensitivity in predicting changes in children's angry reactivity was comparable in form to its protective effects for children's prosocial and externalizing behaviors (Muller, Judd, & Yzerbyt, 2005). Inspection of the graphical plot shown in Figure 4 provides evidence for similarity in the nature of the moderating role of maternal sensitivity for changes in children's angry reactivity and the two forms of psychological adjustment. More specifically, simple slope analyses of IPV in predicting changes in children's angry reactivity to interparental conflict were significant at low ($-1 SD$), $b = .11, p < .01$, but not high ($+ 1 SD$), $b = -.08, ns$, levels of maternal sensitivity. Likewise, simple slope analyses of maternal sensitivity further revealed that decreases in children's angry reactivity to conflict were only predicted by sensitive child-rearing practices at high levels of IPV, $b = -.68, p = .01$ and not when IPV was low, $b = .26, ns$.

Discussion

To better understand the wide heterogeneity of functioning in children exposed to IPV, the current study employed a multi-method approach to examine the interplay between family and child characteristics in the relation between exposure to IPV and child adjustment across the preschool period. Underscoring the value of identifying protective factors for children exposed to IPV, negligible associations between IPV and children's prosocial behavior and externalizing problems in our study indicated that children who were exposed to similar levels of violence exhibited a wide range of functioning. In support of parenting as a moderator of children's development in violent homes, there is increasing scientific acknowledgement that parents facing intimate partner violence may be able to dedicate resources toward child-rearing strategies that counteract some of the stress experienced by their children (Davies et al., 2006; Jouriles et al., 2008; Skopp et al., 2007). Consequently, in accounting for part of the wide variability in outcomes of children who are exposed to IPV,

some forms of parenting may actually serve as protective factors. In examining the plausibility of this hypothesis, our results supported the hypothesis that maternal sensitive parenting buffered children against the vulnerability associated with exposure to IPV.

Consistent with protective models in developmental psychopathology (Luthar, 2006; Margolin et al., 2001), IPV predicted subsequent increases in child externalizing problems and decreases in prosocial behavior over a two year period only for children experiencing low levels of maternal sensitivity. In further supporting the buffering pattern of maternal sensitivity, IPV failed to predict either form of children's psychological adjustment in the context of high maternal sensitivity. Moreover, whereas maternal sensitivity was unrelated to child adjustment at low levels of IPV, it was a significant predictor of greater psychological adjustment at high levels of IPV. Within the taxonomy of protective factors (Luthar, Cicchetti, & Becker, 2000), this type of moderation reflects a protective-stabilizing pattern whereby maternal sensitivity preserves children's competent outcomes (i.e., greater prosocial behavior, lower externalizing symptoms) in spite of the higher risk to maladjustment posed by increasing levels of IPV. Moreover, these findings are consistent with studies examining parenting dimensions as protective factors in associations between IPV and maladaptive child outcomes (Jouriles et al., 2008; Katz & Windecker-Nelson, 2006; Skopp et al., 2007). For example, research has shown that significant relations between interparental aggression and children's psychological difficulties evident when maternal warmth was low were no longer significant when warmth was high (Jouriles et al., 2008; Skopp et al., 2007). Thus, as a protective factor, positive parenting ameliorated the risk conferred by IPV to child maladjustment. Our longitudinal study extends these results by demonstrating that the protective-stabilizing role of maternal sensitivity is enduring over a two-year period for both positive (i.e., prosocial behavior) and negative (i.e., externalizing problems) outcomes.

The present study was also designed to identify *how* and *why* the risk posed by IPV varies as a function of maternal sensitivity. Process models have proposed a pathway whereby interparental hostility increases children's psychological maladjustment by heightening their angry emotional reactivity to conflict (Crockenberg & Langrock, 2001a; Jenkins, 2000; Rhoades, 2008). In accord with these functionalist theories, our findings supported a mediational pathway in which IPV predicted increases in children's angry reactivity over a year period. Levels of angry reactivity one year following IPV exposure, in turn, predicted increases in externalizing problems and decreases in prosocial behavior over the two year course of the study. However, as a critical qualification, this mediational path was only evident when children did not have access to sensitive maternal parenting. In further highlighting the developmental significance of angry reactivity for the second link in the mediated moderation chain (Rhoades, 2008), the results revealed a robust association between children's angry reactivity and their decreases in prosocial and increases in externalizing behavior over a two year period. Interpreted within developmental models, children's angry reactivity to interparental conflict may crystallize into broader externalizing symptoms by increasing their tendencies to utilize this style of responding as a blueprint for reacting to subsequent novel or challenging settings (Davies et al., 2006; Sroufe et al.,

2005). As another part of this process, angry reactivity may limit children's opportunities for prosocial interaction and skill building in interpersonal settings (Arsenio et al., 2000).

In more specifically highlighting the processes by which maternal sensitivity may confer protective effects for children's mental health outcomes, our findings revealed that IPV was unrelated to changes in children's angry reactivity to interparental conflict one year later and their changes in prosocial or externalizing behaviors over a two year period only when maternal sensitivity was high. Given our empirical documentation that the moderating effect of maternal sensitivity in the models of IPV was mediated by children's angry reactivity, these findings provide support for the hypothesis that sensitive parenting enhances children's psychological adjustment by reducing their tendencies to respond to interparental conflicts with prolonged, intense bouts of anger. When interpreting these protective effects, it is important to consider the question of how sensitive parenting may disrupt the pathogenic processes of angry reactivity to conflict. For example, Emery (1989) proposed that the children's behavior problems are rooted in a three step transactional process whereby: (1) the aversive properties of destructive interparental conflict naturally produce distress in children; (2) children's resulting expressions of intense distress (e.g., anger, aggression, temper tantrums) reduce their exposure to the stressful interparental interactions by distracting parents from engaging in the conflict; and (3) the disruptive behaviors are more likely to proliferate in subsequent conflicts because it reduces the aversive stimuli via negative reinforcement contingencies. In these contexts, mothers who are sensitive to their children's needs may be able to effectively respond to their distress in a way that reduces the likelihood of this escalating, coercive process (Snyder et al., 2010). It is also possible that our broad assessment of sensitive parenting is a proxy for a more operative set of child-rearing practices dedicated to socializing children's experience and displays of emotion through specific scaffolding and emotion coaching techniques (Katz & Windecker-Nelson, 2006). Through this process, children may experience less intense bouts of anger (Eisenberg et al., 1998; Morris et al., 2011).

Building on this work, our findings suggest that advantages of experiencing sensitive parenting are most pronounced for children exposed to high levels of IPV. The current findings indicated that the developmental utility of sensitive child-rearing was primarily rooted in its prediction of subsequently lower levels of angry reactivity, increases in prosocial behavior, and diminished externalizing problems only when children were exposed to high levels of IPV. Thus, the ability of parents to offer a secure base of support for children to exhibit less intense and prolonged anger may assume particular significance for children in emotion-laden family contexts. Because the stressfulness of homes characterized by violence between parents may repeatedly promote intense emotional experiences, sensitive parenting may serve to increase children's tolerance of aversive family interactions in a way that promotes prosocial function and reduces conduct problems (Davies et al., 2006). Consistent with this thesis, parenting interventions for mothers in domestic violence shelters reduce children's conduct problems by enhancing maternal child-rearing practices and well-being (Jouriles et al., 2009).

Our findings must also be interpreted in the context of study limitations. Given our selective focus on angry reactivity to conflict as the sole explanatory factor, it is important for future

research to broaden the search for other mediating mechanisms across multiple domains (e.g., child appraisals of conflict) and levels (e.g., physiological reactivity to stress) of analysis. Moreover, other forms of child emotional reactivity (e.g., fear, sadness) may also help serve as mechanisms that account for the moderating effects of sensitive parenting (Crockenberg & Langrock, 2001b; Davies et al., 2012). In addition, our approach did not permit an analysis of bidirectional associations among the variables over time. Thus, the findings do not exclude the possibility that children's angry reactivity to conflict may evoke maternal insensitivity or IPV.

At this early stage of research, caution should also be exercised in generalizing the findings to other samples. Our goal was to obtain a sample of racially diverse families who generally experienced similarly high levels of socioeconomic adversity but considerable heterogeneity in interparental violence. However, it is possible that our design may have produced inflated estimates of some of the pathways, particularly in comparison to community samples of families experiencing lower levels of adversity. Moreover, given the distinct role that fathers' play in children's development (Parke, 2002), questions remain as to whether paternal sensitivity operates in a similar way as a protective factor. Thus, it would be premature at this stage to generalize our findings to other populations without replication.

Finally, advances in the understanding of sources of children's resilience in the context of IPV will require further empirical extensions. At the level of precision, our broad, multi-dimensional parenting composite raises questions about the specific properties of sensitivity that operate as protective effects. For example, if sensitive parenting disrupts children's negative developmental trajectories by altering their emotional reactions to family adversity, more specific indices of emotion socialization practices or sensitivity to child distress may be the active buffering mechanisms in violent homes. Further work is also needed to identify other family and individual characteristics that moderate children's adjustment to IPV. Moreover, the pattern of moderation may differ substantially depending on the specific protective factor under investigation (Luthar et al., 2000). Therefore, documenting specificity in the study of moderators may be particularly informative for clinical interventions by highlighting the most salient ways to interrupt pathways of developmental risk and promote positive adjustment.

In summary, our multi-method, longitudinal study was designed to add a new level of rigor in identifying maternal sensitivity as a protective factor in violent homes. In highlighting the substantive originality, our study was designed to move beyond cataloguing moderating conditions in models of IPV by delineating the mechanisms underlying their protective effects. Findings specifically indicated that maternal sensitivity served as a protective factor in pathways between IPV and subsequent changes in children's prosocial and externalizing behaviors through its linkage with child angry reactivity to interparental conflict.

Acknowledgments

This research was supported by the National Institute of Mental Health (R01 MH071256) awarded to Patrick T. Davies and Dante Cicchetti. The project was conducted at Mt. Hope Family Center. The authors are grateful to the children, parents, and community agencies who participated in this project and to the Mt. Hope Family Center staff.

References

- Alink LA, Cicchetti D, Kim J, Rogosch F. Mediating and moderating processes in the relation between maltreatment and psychopathology: Mother-child relationship quality and emotion regulation. *Journal of Abnormal Child Psychology*. 2009; 37:831–843. [PubMed: 19301118]
- Arsenio WF, Cooperman S, Lover A. Affective predictors of preschoolers' aggression and peer acceptance: Direct and indirect effects. *Developmental Psychology*. 2000; 36:438. [PubMed: 10902696]
- Block, J.; Block, JH. *The California Child Q-set*. Palo Alto, California: Consulting Psychologists Press; 1980.
- Bradley RH, Corwyn RF. Socioeconomic status and child development. *Annual Review of Psychology*. 2002; 53:371–399.
- Crockenberg, S.; Langrock, A. The role of emotion and emotional regulation in children's responses to interparental conflict. In: Grych, JH.; Fincham, FD., editors. *Interparental conflict and child development: Theory, research, and applications*. New York: Cambridge University Press; 2001a. p. 129-156.
- Crockenberg S, Langrock A. The role of specific emotions in children's responses to interparental conflict: A test of the model. *Journal of Family Psychology*. 2001b; 15:163–182. [PubMed: 11458627]
- Cummings, EM.; Davies, PT. *Marital conflict and children: An emotional security perspective*. New York: Guilford; 2010.
- Cummings, EM.; Davies, PT.; Campbell, SB. *Developmental psychopathology and family process: Theory, research, and clinical implications*. New York: Guilford; 2000.
- Davies PT, Cicchetti D, Martin MJ. Toward greater specificity in identifying associations among interparental aggression, child emotional reactivity to conflict, and child problems. *Child Development*. 2012; 83:1789–1804. [PubMed: 22716918]
- Davies PT, Cummings EM. Marital conflict and child adjustment: An emotional security hypothesis. *Psychological Bulletin*. 1994; 116:387–411. [PubMed: 7809306]
- Davies PT, Manning LG, Cicchetti D. Tracing the cascade of children's insecurity in the interparental relationship: The role of stage-salient tasks. *Child Development*. 2013; 84:297–312. [PubMed: 22925122]
- Davies PT, Sturge-Apple ML, Cicchetti D, Manning LG, Zale E. Children's patterns of emotional reactivity to conflict as explanatory mechanisms in links between interpartner aggression and child physiological functioning. *Journal of Child Psychology and Psychiatry*. 2009; 50:1384–1391. [PubMed: 19744183]
- Davies PT, Winter M, Cicchetti D. The implications of emotional security theory for understanding and treating childhood psychopathology. *Development and Psychopathology*. 2006; 18:707–735. [PubMed: 17152397]
- Delsol C, Margolin G. The role of family-of-origin violence in men's marital violence perpetration. *Clinical Psychology Review*. 2004; 24:99–122. [PubMed: 14992808]
- Denham SA, Blair KA, DeMulder E, Levitas J, Sawyer K, Auerbach-Major S, Queenan P. Preschool emotional competence: Pathway to social competence. *Child Development*. 2003; 74:238–256. [PubMed: 12625448]
- Dogan SJ, Stockdale GD, Widaman KF, Conger RD. Developmental relations and patterns of change between alcohol use and number of sexual partners from adolescence through adulthood. *Developmental Psychology*. 2010; 46:1747–1759. [PubMed: 20677862]
- Dumas D, Margolin G, John RS. The intergenerational transmission of aggression across three generations. *Journal of Family Violence*. 1994; 9:157–175.
- Eisenberg N, Cumberland A, Spinrad TL. Parental socialization of emotion. *Psychological Inquiry*. 1998; 9:241–273. [PubMed: 16865170]
- Emery RE. Family violence. *American Psychologist*. 1989; 44:321–328. [PubMed: 2653142]
- Fantuzzo J, Boruch R, Beriama A, Atkins M, Marcus S. Domestic violence and children: Prevalence and risk in five major U.S. cities. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1997; 36:116–122. [PubMed: 9000789]

- Ferrer E, Balluerka N, Widaman KF. Factorial invariance and the specification of second-order latent growth models. *Methodology*. 2008; 4:22–36. [PubMed: 20046801]
- Fosco GM, DeBoard RL, Grych JH. Making sense of family violence: Implications of children's appraisals of interparental aggression for their short- and long-term functioning. *European Psychologist*. 2007; 12:6–16.
- Garner PW, Dunsmore JC, Southam-Gerrow M. Mother-child conversations about emotions: Linkages to child aggression and prosocial behavior. *Social Development*. 2008; 17:259–277.
- Grych JH, Fincham FD. Marital conflict and children's adjustment: A cognitive-contextual framework. *Psychological Bulletin*. 1990; 108:267–290. [PubMed: 2236384]
- Jenkins JM. Marital conflict and children's emotions: The development of an anger organization. *Journal of Marriage and the Family*. 2000; 62:723–736.
- Jouriles EN, Brown AS, McDonald R, Rosenfield D, Leahy MM, Silver C. Intimate partner violence and preschoolers' explicit memory functioning. *Journal of Family Psychology*. 2008; 22:420–428. [PubMed: 18540770]
- Jouriles EN, McDonald R, Rosenfield D, Stephens N, Corbitt-Shindler D, Miller PC. Reducing conduct problems among children exposed to intimate partner violence: A randomized clinical trial examining effects of Project Support. *Journal of Consulting and Clinical Psychology*. 2009; 77:705–717. [PubMed: 19634963]
- Jouriles EN, Norwood WD. Physical aggression toward boys and girls in families characterized by the battering of women. *Journal of Family Psychology*. 1995; 9:69–78.
- Kalil A, Tolman R, Rosen D, Gruber G. Domestic violence and children's behavior in low-income families. *Journal of Emotional Abuse*. 2003; 3:75–101.
- Katz LF, Hessler DM, Annett A. Domestic violence, emotional competence, and child adjustment. *Social Development*. 2007; 16:513–538.
- Katz L, Windecker-Nelson B. Parental meta-emotion philosophy in families with conduct-problem children: Links with peer relations. *Journal of Abnormal Child Psychology*. 2006; 32:385–398. [PubMed: 15305544]
- Kerig P. Assessing the links between interparental conflict and child adjustment: The Conflict and Problem-Solving Scales. *Journal of Family Psychology*. 1996; 10:454–473.
- Kitzmann KM, Gaylord NK, Holt AR, Kenny ED. Child witnesses to domestic violence: A meta-analytic review. *Journal of Consulting and Clinical Psychology*. 2003; 71:339–352. [PubMed: 12699028]
- Levendosky AA, Huth-Bocks AC, Shapiro DL, Semel MA. The impact of domestic violence on the maternal-child relationship and preschool-age children's functioning. *Journal of Family Psychology*. 2003; 17:275–287. [PubMed: 14562453]
- Levendosky AA, Leahy KL, Bogat GA, Davidson WS, von Eye A. domestic violence, maternal parenting, maternal mental health, and infant externalizing behavior. *Journal of Family Psychology*. 2006; 20:544–552. [PubMed: 17176188]
- Little RJA. A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*. 1988; 83:1198–1202.
- Luthar SS, Cicchetti D, Becker B. The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*. 2000; 71:543–562. [PubMed: 10953923]
- MacKinnon DP, Lockwood CM, Hoffman JM, West SG, Sheets V. A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*. 2002; 7:83–104. [PubMed: 11928892]
- Maikovich AK, Jaffee SR, Odgers CL, Gallop R. Effects of family violence on psychopathology symptoms in children previously exposed to maltreatment. *Child Development*. 2008; 79:1498–1512. [PubMed: 18826538]
- Margolin, G.; Oliver, P.; Medina, A. Conceptual issues in understanding the relation between interparental conflict and child adjustment: Integrating developmental psychopathology and risk/resilience perspectives. In: Grych, J.; Fincham, F., editors. *Child development and interparental conflict*. NY: Cambridge University Press; 2001. p. 9–38.

- Marsh HW, Wen Z, Hau KT. Structural equation models of latent interactions: evaluation of alternative estimation strategies and indicator construction. *Psychological Methods*. 2004; 9:275. [PubMed: 15355150]
- Matas L, Arend RA, Sroufe LA. Continuity of adaptation in the second year: The relationship between quality of attachment and later competence. *Child Development*. 1978; 49:547–556.
- McArdle JJ. Latent variable modeling of differences and changes with longitudinal data. *Annual Review of Psychology*. 2009; 60:577–605.
- McLoyd VC. Socioeconomic disadvantage and child development. *American Psychologist*. 1998; 53:185–204. [PubMed: 9491747]
- Melby, JN.; Conger, RD. The Iowa Family Interaction Rating Scales: Instrument summary. In: Kerig, PK.; Lindahl, KM., editors. *Family observational coding systems: Resources for systemic research*. Mahwah, NJ: Erlbaum; 2001. p. 33-58.
- Morris AS, Silk JS, Morris MD, Steinberg L, Aucoin KJ, Keyes AW. The influence of mother-child emotion regulation strategies on children's expression of anger and sadness. *Developmental Psychology*. 2011; 47:213–225. [PubMed: 21244160]
- Morris AS, Silk JS, Steinberg L, Myers SS, Robinson LR. The role of the family context in the development of emotion regulation. *Social Development*. 2007; 16:361–388. [PubMed: 19756175]
- Muller D, Judd CM, Yzerbyt VY. When moderation is mediated and mediation is moderated. *Journal of Personality and Social Psychology*. 2005; 89:852–863. [PubMed: 16393020]
- Owen AE, Thompson MP, Kaslow NJ. The mediating role of parenting stress in the relation between intimate partner violence and child adjustment. *Journal of Family Psychology*. 2006; 20:505–513. [PubMed: 16938009]
- Rhoades KA. Children's responses to interparental conflict: A meta-analysis of their associations with adjustment. *Child Development*. 2008; 6:1942–1956. [PubMed: 19037959]
- Roberts W, Strayer J. Empathy, emotional expressiveness, and prosocial behavior. *Child Development*. 1996; 67:449–470.
- Schlomer GL, Bauman S, Card NA. Best practices for missing data management in counseling psychology. *Journal of Counseling Psychology*. 2010; 57:1–10. [PubMed: 21133556]
- Shields AM, Cicchetti D. Emotion regulation and autonomy: The development and validation of two new criterion Q-sort scales. *Developmental Psychology*. 1997; 33:906–916. [PubMed: 9383613]
- Skopp NA, McDonald R, Jouriles EN, Rosenfield D. Partner aggression and children's externalizing problems: Maternal and partner warmth as protective factors. *Journal of Family Psychology*. 2007; 21:459–467. [PubMed: 17874931]
- Shiner R, Caspi A. Personality differences in childhood and adolescence: measurement, development, and consequences. *Journal of Child Psychology and Psychiatry*. 2003; 44:2–32. [PubMed: 12553411]
- Snyder, J.; Schrepferman, L.; McEachern, A.; DeLeeuw, J. The contribution of child anger and fear, and parental discipline to early antisocial behavior: An integrative model. In: Potegal, M.; Stemmler, G.; Spielberger, C., editors. *International handbook of anger: Constituent and concomitant biological, psychological, and social processes*. New York, NY: Springer; 2010. p. 517-534.
- Sroufe, LA.; Egeland, B.; Carlson, EA.; Collins, WA. *The Development of the Person: The Minnesota Study of Risk and Adaptation from Birth to Adulthood*. New York: Guilford Press; 2005.
- Stormshak EA, Webster-Stratton C. The qualitative interactions of children with conduct problems and their peers: Differential correlates with self-report measures, home behavior, and school behavior problems. *Journal of Applied Developmental Psychology*. 1999; 20:295–317.
- Straus MA, Hamby SL, Boney-McCoy S, Sugarman DS. The revised conflict tactics scales (CTS2). *Journal of Family Issues*. 1996; 17:283–316.
- Strayer J, Roberts W. Empathy and observed anger and aggression in five-year-olds. *Social Development*. 2004; 13:1–13.

Figure 1.

The structural component of a latent difference score model examining the interaction between IPV and maternal sensitivity and changes in child externalizing and prosocial behavior across two years prior to inclusion of mediational paths for children's angry reactivity to conflict. Parameter estimates for the structural paths are standardized path coefficients. For clarity, only significant structural paths and correlations are shown. Hypothesized pathways are shown in bold; * $p < .05$.

a.

b.

Figure 2.

a. Graphical plot of the moderating role of maternal sensitivity in the prospective association between IPV and changes in externalizing behavior over time.

b. Graphical plot of the moderating role of maternal sensitivity in the prospective association between IPV and changes in prosocial development over time.

Figure 3.

The structural component of a mediated moderation latent difference score model examining associations between IPV, maternal sensitivity, and child angry reactivity on externalizing behavior and prosocial behavior over a two year period. Parameter estimates for the structural paths are standardized path coefficients. For clarity, only significant structural paths and correlations are shown. Hypothesized pathways are shown in bold; * $p < .05$; + $p < .10$.

Figure 4. Graphical plot of the moderating role of maternal sensitivity in the association between IPV and changes in children's angry reactivity to interparental conflict from Wave 1 to Wave 2.

Table 1

Means, Standard Deviations, and Correlations Among the Primary Variables in the Study

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Wave 1 Primary Family Variables																		
1. CPS: Physical Assault	2.45	3.64	--															
2. CTS2: Physical Aggression	2.76	4.36	.61*	--														
3. CTS2: Injury Scale	0.41	1.26	.55*	.72*	--													
4. Maternal Sensitivity	0.0	0.91	-.15*	-.24*	-.18*	--												
Wave 1 Child functioning																		
5. Externalizing Qsort: Rater1	71.57	16.31	.02	.04	.03	-.17*	--											
6. Externalizing Qsort: Rater2	73.88	17.19	-.01	.05	.06	-.20*	.65*	--										
7. Prosocial Qsort: Rater1	66.31	9.25	.02	.01	-.06	.20*	-.73*	-.48*	--									
8. Prosocial Qsort: Rater2	64.73	9.24	.07	-.01	-.04	.21*	-.53*	-.68*	.58*	--								
W1 Child Angry Reactivity																		
9. Tally	0.82	1.16	.05	.15*	.05	-.16*	.13	.15*	.01	-.08	--							
10. Ratings	1.24	1.81	.20*	.25*	.16*	-.16*	.17*	.17*	-.04	-.12	.83*	--						
W2 Child Angry Reactivity																		
11. Tally	0.48	0.84	.02	.13	-.02	-.17*	.08	.04	-.03	-.04	.36*	.37*	--					
12. Ratings	1.10	1.67	.11	.23*	.06	-.24*	.11	.13	-.08	-.13	.43*	.51*	.74*	--				
W3 Child Functioning																		
13. Externalizing Qsort: Rater1	74.83	17.93	.10	.14	.05	-.31*	.30*	.35*	-.20*	-.27*	.17*	.20*	.24*	.28*	--			
14. Externalizing Qsort: Rater2	75.10	17.71	.14	.14	.02	-.25*	.28*	.32*	-.13	-.16*	.13	.24*	.21*	.29*	.67*	--		
15. Prosocial Qsort: Rater1	67.11	9.93	-.05	-.06	.00	.24*	-.22*	-.23*	.22*	.22*	-.12	-.16*	-.14	-.22*	-.75*	-.56*	--	
16. Prosocial Qsort: Rater2	66.29	9.93	-.12	-.09	.01	.16*	-.26*	-.30*	.21*	.20*	-.13	-.21*	-.19*	-.27*	-.60*	-.80*	.64*	--

Note. * $p < .05$.

Table 2

Results of the Measurement Models for Latent Constructs in the SEM analyses in Figure 1 and 3:
Standardized Loadings of the Manifest Indicators for Each Latent Construct

Latent Construct	Manifest Indicators	Moderator Model	Mediated Moderator Model
Interparental Violence (IPV)	CTS2 Physical Assault (PA)	.91	.91
	CTS2 Injury (Inj)	.79	.79
	CPS Physical Aggression (PA)	.68	.69
IPV $\times$ Maternal Sensitivity	CTS2 PA $\times$ Sensitivity	.94	.93
	CTS2 Inj $\times$ Sensitivity	.83	.83
	CPS PA $\times$ Sensitivity	.75	.75
Negative Temperament	Low Soothability	.69	.69
	Anger	.56	.56
	Discomfort	.54	.53
Socioeconomic Status	Earned Income	.71	.71
	Maternal Education	.69	.69
	Partner Education	.62	.62
T1 Child Angry Reactivity	Continuous Rating	.95	.95
	Behavioral Tally	.87	.87
T2 Child Angry Reactivity	Continuous Rating	.92	.92
	Behavioral Tally	.82	.82
T1 Externalizing Symptoms	Experimenter 1 Q-sort	.82	.82
	Experimenter 2 Q-sort	.80	.80
T3 Externalizing Symptoms	Experimenter 1 Q-sort	.83	.83
	Experimenter 2 Q-sort	.82	.82
T1 Prosocial Behavior	Experimenter 1 Q-sort	.76	.76
	Experimenter 2 Q-sort	.75	.75
T3 Prosocial Behavior	Experimenter 1 Q-sort	.81	.81
	Experimenter 2 Q-sort	.81	.81

Note. Loadings of all manifest indicators were statistically significant at $p < .001$.