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Internalizing and Externalizing Symptoms in Young Children Exposed to Intimate Partner Violence: Examining Intervening Processes

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Abstract

Children's emotion dysregulation, children's appraisals, maternal psychological functioning, and harsh discipline were investigated as potential mediators in the putative link between exposure to intimate partner violence and poor child outcomes. Participants included 132 children ages 6–8 and their mothers who had been enrolled in a longitudinal study of parenting and children's social development. The mothers were receiving some form of government-based economic assistance or other social services, and were currently involved in a romantic relationship. Results of structural equation modeling indicated children's emotion dysregulation mediated the links between exposure to IPV and both internalizing and externalizing problems. Harsh discipline mediated the link between exposure to IPV and externalizing, but not internalizing, symptoms. Child appraisals and maternal psychological functioning mediated the link between exposure to IPV and internalizing, but not externalizing, symptoms.

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Keywords

Violence; IPV; children; exposure; mediators; internalizing; externalizing

Approximately 15.5 million American children reside in homes in which intimate partner violence (IPV) has occurred in the previous year (McDonald, Jouriles, Ramisetty-Mikler, Caetano, & Green, 2006). Such children are at heightened risk for a variety of social, cognitive, and emotional problems, with problems manifested from infancy through young adulthood (e.g., Bogat, DeJonghe, & Levendosky, 2006). Children reared in homes characterized by IPV evidence higher levels of anxiety and depression (Kernic et al., 2003), and PTSD symptoms (Kilpatrick & Williams, 1997; Lang & Stover, 2008). Children exposed to IPV are also more likely to exhibit aggression (e.g., Kernic et al., 2003) and conduct problems (e.g., Jouriles, Murphy, & O'Leary, 1989). Moreover, among children who present with problems, it is unclear why some studies find links to internalizing symptoms while others find links to externalizing symptoms. Based on a meta-analysis of the impact of witnessing IPV, Kitzmann, Gaylord, Holt, and Kenny (2003) concluded that, although exposure to IPV adversely impacts the psychosocial status of children, it is impossible to draw definitive conclusions regarding the specific nature of this link. That is, the existing literature does not establish the processes through which exposure to IPV leads to internalizing or externalizing symptoms in young children.

There are several reasons for the current state of knowledge in this area. First, there is high comorbidity between internalizing and externalizing symptoms in young children (e.g., Kessler, Chiu, Demler, & Walters, 2005). Second, IPV is highly comorbid with other contextual factors linked to poor child adjustment, including economic disadvantage, neglectful or abusive parenting, and maternal psychological distress. These comorbid contextual factors are rarely considered in research examining the putative link between IPV and children's outcomes. Third, there is considerable complexity associated with attempts to link specific childhood experiences to particular short-term and long-term outcomes. Integrated theoretical models that emphasize multifinality and equifinality (c.f. Cicchetti & Rogosch, 1999) are needed to account for the evidence that one stressor can be associated with different childhood outcomes, and different stressors can be associated with a single outcome.

Efforts to understand the impact of parental conflict on children highlight the importance of conceptual models that reflect the interconnected nature of family dynamics and child characteristics (e.g., Davies & Cummings, 1994; Grych & Fincham, 1990). Given the complexity of the phenomena associated with IPV and limited knowledge gained to date, there is a need for models that examine mediators of the links between IPV and children's psychological symptoms. While ecological and trauma-based theories have some support, models that emphasize social learning principles have provided the dominant conceptual framework for studying the effects of children's exposure to violence (e.g., Patterson, 1982). While each perspective has offered insight into the sequelae of family violence, none has accounted for the full range of outcomes observed in children exposed to IPV. Progress toward understanding the link between exposure to IPV and child outcomes depends on

further examination of theoretical models that integrate several potential mediators. The purpose of the current study was to examine the influence of multiple mediators including both children's attributes (children's emotion dysregulation and children's appraisals), maternal factors (maternal psychological functioning) and contextual factors (harsh discipline).

Mediators of the Link Between Exposure to IPV and Child Outcomes

Emotion Dysregulation

Children's exposure to parental conflict poses a significant threat to children's ability to process and regulate emotions effectively (e.g., Davies & Cummings, 1994). Investigators have consistently found increased reports of negative affect (e.g., distress, fear, anger, and concern) in children who witness interadult conflict, as well as heightened emotional sensitivity to conflict (e.g., Davies, Myers, Cummings, & Heindel, 1999). Greater emotional distress, coupled with deficits in the ability to effectively manage distress, has been shown to play a role in the development of child psychopathology (e.g., Eisenberg & Sulik, 2012). For example, a lack of effective emotion regulation in the form of undercontrolled and overcontrolled emotional reactions contributes to both internalizing and externalizing symptoms (e.g., Kitzmann et al., 2003). Although more often studied in models of the effects of marital conflict on children, a few studies provide preliminary support for emotion dysregulation as a relevant pathway in the link between exposure to IPV and psychopathology (e.g., El-Sheikh, Cummings, Kouros, Elmore-Staton, & Buckhalt, 2008; Harding, Morelen, Thomassin, Bradbury, & Shaffer, 2013).

Emotion regulation encompasses a complex interaction of systems, including cognitive and interpersonal processes that can be studied at multiple levels within and across situations where children encounter emotionally arousing stimuli (Gross & Thompson, 2007). It can be measured by observing second-by-second changes in physiological, facial, or vocal responses in lab-based paradigms, or more globally via caregivers' and teachers' reports. Similar to recent studies (e.g., McCoy & Raver, 2011), the present study sought to examine children's molar-level emotion dysregulation, indexed by observed ratings of emotional expression during a series of laboratory-based tasks.

Cognitive Appraisals

Cross-sectional and longitudinal research supports the role of children's appraisals of threat as a mechanism through which parental conflict is linked with poor adjustment, including internalizing and externalizing problems (c.f., Grych & Cardoza-Fernandez, 2001). Applying this work to more extreme forms of parental conflict, children's appraisals and perceptions regarding IPV may contribute to psychological and interpersonal functioning (e.g., Fosco, DeBoard, & Grych, 2007). Preliminary evidence provides support for this hypothesis. Children exposed to IPV have more negative and fewer positive representations of conflict situations and more negative beliefs about close relationships, which may give rise to problems in social/emotional functioning (Minze, McDonald, Rosentraub, & Jouriles, 2010).

Furthermore, the degree to which aggression is perceived as justified or acceptable may be particularly salient in the link between exposure to IPV and externalizing problems (Marcus, Lindahl, & Malik, 2001). If children view a violent act as normative or acceptable, they may be more likely to develop the belief that aggression can be appropriate or effective in close relationships. Kinsfogel and Grych (2004) found that children exposed to IPV were more likely to view aggression as justifiable in relationships, which predicted higher levels of aggression in adolescence. Furthermore, work by Marcus et al. (2001) supports a mediational pathway, such that children's perceptions of aggression as normative partially account for the association between interparental conflict and aggressive behavior in elementary school-aged children.

Maternal Psychological Functioning

Maternal psychopathology may serve as intervening variables between exposure to IPV and child outcomes (Dehon & Weems, 2010). For example, mothers who are perpetrators and/or victims of IPV are likely to experience psychological problems, which may contribute to children's difficulties by making mothers less consistently supportive and reliable caregivers (Katz & Gottman, 1997). Recently, Huang, Wang, and Warrener (2010) reported that children concurrently exposed to maternal depression and violence are at greater risk for problem behaviors than those exposed to either factor alone, and that maternal mental health accounts for maladaptive emotional and behavioral responses in children exposed to IPV.

Harsh Discipline

Harsh parenting has been linked to child externalizing problems (Knutson, DeGarmo, Koeppel, & Reid, 2005) and internalizing problems (Dubowitz, Papas, Blak, & Starr, 2002). Moreover, parents who exhibit high levels of violence in their relationships are particularly likely to show poor and inconsistent discipline (e.g., Levendosky & Graham-Bermann, 1998). The "parenting-as-mediator hypothesis" (Tschann et al., 1989) proposes that IPV indirectly affects child adjustment through detrimental parenting practices. Recent findings lend support to this hypothesis, suggesting that maltreatment may serve as a mechanism underlying the relation between IPV and children's emotional and behavioral problems (e.g., Maughan & Cicchetti, 2002). Further research is needed to clarify the unique and interactive contributions of exposure to IPV and harsh discipline on children's adjustment.

Overview of the Present Study

There is evidence that children's emotion dysregulation, children's appraisals, maternal psychological functioning, and harsh discipline each play a role in mediating the impact of exposure to IPV on children. Previously tested models have not included all such mediators in a single analysis or compared models representing different relations among the constructs. Without an integrative model that incorporates child attributes, parent characteristics, and contextual factors, clear conclusions cannot be drawn about intervening processes in the development of child psychopathology. The present investigation was designed to build on the existing literature through the examination of direct and mediated effects of exposure to IPV on child adjustment. By integrating both children's (emotion dysregulation and cognitive appraisals), maternal (psychological functioning) and contextual

(harsh discipline) variables in a single model, we simultaneously considered multiple risks potentially contributing to both externalizing and internalizing symptomatology. We focused on children in the early elementary school years and used a prospective longitudinal design and incorporated multiple measures related to each of the key constructs, which were integrated into a comprehensive measurement model and tested with structural equation modeling. The conceptualized model and hypothesized paths are depicted in Figure 1. Based on previous research, we hypothesized that exposure to IPV is related to deficits in emotion regulation, more fearful/hostile cognitive appraisals, maladaptive maternal psychological functioning, and greater levels of harsh discipline. We hypothesized that emotion dysregulation and cognitive appraisals would mediate the impact of IPV exposure on both externalizing and internalizing behavior. We hypothesized that maternal psychological functioning would mediate the association of IPV exposure and internalizing behavior. Finally, we hypothesized that harsh discipline would mediate the link between exposure to IPV and externalizing behavior.

Method

Participants and Procedures

The sample consisted of 132 children and their mothers who had been enrolled in a larger longitudinal study of parenting and children's social development. Participants were recruited from small urban, suburban, and rural communities in southeast Iowa and central Wisconsin. To be eligible for the larger study, families had to have a child between the ages of 4 and 8 residing in the home and receive some government-based assistance (e.g., Temporary Assistance for Needy Families, Medicaid, Food Stamps) or other social services. Families characterized by low socioeconomic status were selected because poverty has been linked to both IPV and children's psychological adjustment. The current sample consists of only those families in which mothers were currently involved in a heterosexual romantic relationship, and the child was between the ages of 6 and 8 at the time of enrollment ($M = 6.9$ years, $SD = .9$). The child age-limitation was, in part, to assure the child could fully participate in the protocol. The majority of families in the current sample were two-parent households (79.5%) with approximately 47% having two biological parents of the child, 48% a biological mother coupled with a step-father, boyfriend, or adopted father, and the remainder consisting of a step-mother and a biological father. The mean number of siblings residing in the home of the enrolled child was 2.4 ($SD = 1.5$).

Mothers' self-reported ethnicities were: White/non-Hispanic (70%), Black (20%), and other racial or ethnic groups—Native American, Latina, and multiracial or multi-ethnic—(10%). Children's ethnicities as reported by caretakers were: White/non-Hispanic (64%), Black (17%), multiracial or multi-ethnic (10%), Latino/a (7%) and Native American (2%). Although current income level was not assessed, mothers reported on occupational and educational attainment. Mothers' occupational status consisted of 28.8% unemployed, 22% unskilled laborers, 15.9% semiskilled laborers, 18.2% skilled laborers, 6.8% professionals, and 8.3% students. With regard to level of education, 8.3% of mothers had attended some high school, 37.1% had received a high school diploma/GED, 36.4% had attended some

college, 9.8% had received an associate degree, and 8.3% received at least a bachelor's degree.

Because the longitudinal study was focused on parent-child relations, children residing in out-of-home placements (i.e., foster care, kinship care) were not eligible to participate. Families were also ineligible if the child was known to be a victim of sexual abuse; however, children who had been previous victims of physical abuse or neglect were eligible. At quarterly intervals, lists of eligible families were prepared by the Iowa Department of Human Services and Oneida County Department of Social Services (WI). In addition, the County Attorney office (IA) and District Attorney office (WI) provided lists of women who had been involved in injurious (indictable) domestic assaults. The lists were used to contact potential subjects.

Mothers were sent a letter informing them of their eligibility to participate in a study of parenting and children's development, assurances that participation would not affect family eligibility for services, that the agency would not be informed of their participation, and that compensation would be provided. The letter was signed by a representative of the regional social service agency. If a parent expressed an interest in learning more about the project by contacting the laboratory, an initial appointment was scheduled in their home for which they received \$50, regardless of their willingness to participate. Following the distribution of the letters, if a telephone number was available, attempts to reach families were made. During the initial in-home appointment, the research protocol was explained and informed consent was obtained. Mothers then completed a structured interview designed to gather background information and information relevant to parenting behaviors. Once enrolled, families were scheduled for four or five laboratory sessions, during which all other relevant data for this report were collected. Sessions commenced within approximately 30 days of enrollment. At the Iowa site, advanced undergraduate and clinical psychology graduate students administered all measures. At the WI site, staffing included former elementary educators, social workers, and post-bachelors staff with human service experience. At both sites, training of staff included shadowing, didactic training, and direct supervision by Ph.D. clinical psychologists. Occasional cross-site staff visitation was used to assure cross-site protocol adherence. Approximately one year after enrollment, families were invited to return to complete the Time 2 follow-up, which occurred during three or four laboratory sessions. Exposure to IPV variables and mediator variables were collected at Time 1 and outcome variables were collected at Time 2. Child assent was obtained at the first laboratory session. Parents were compensated \$50 and children \$10 for each session.

Given the constraints placed on the recruitment procedures, it is impossible to determine the exact number of eligible families who were contacted (i.e., read the initial recruitment letter). Based on indirect evidence when telephone contact was made following the distribution of the letters, returned letters, and focus groups with the targeted population, it is estimated that recruitment efforts reached no more than half of the eligible parents, and it is estimated that 55% of those families who read the letter called the laboratory to schedule an in-home visit. Because there was no direct contact with parents who read the letters unless they contacted the laboratory or were later reached by telephone, we do not know precisely why some chose to contact the laboratory and others did not. Information from focus groups

suggest some failure to respond was attributable to a distrust of the agency sending the letters, being too busy, or a general disinterest in participating in research. Less than 1% of those who participated in the informed consent process declined to participate in the study. Based on contemporaneous county human service records, the sample in WI closely matched the ethnic and racial composition of the populations from which they were recruited; the sample from IA included approximately 40% greater minority group members than would be expected from the population of DHS service recipients in the area. All procedures were conducted under the aegis of The University of Iowa Institutional Review Board (IRB-2) and with a Certificate of Confidentiality issued by NICHD.

Measures & Construct Development

Exposure to Intimate Partner Violence—Five indicators were used to establish a latent construct reflecting children's exposure to IPV. The first two indicators were derived from mother's self-report measures of IPV: the Revised Conflict Tactics Scales (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996), which referenced the previous 12 months, and the Multidimensional Measure Emotional Abuse Scale (MMEA; Murphy & Hoover, 1999), which referenced the previous 6 months. Items are rated on 7-point scales, ranging from "never" to "more than 20 times." Mothers reported on their own and their current partner's aggressive behavior. Composite scores were calculated by adding the midpoints for each response category across tactics (e.g., the midpoint 4 for 3–5 times). The total score on the 24-item Physical Assault Scale of the CTS2 ($M = 30.5$, $SD = 12.2$; $\alpha = .67$) was used as an indicator of physical aggression (e.g., throwing something at partner, pushing, grabbing, or shoving partner, punching or hitting partner, etc.). The total score of the 56-item MMEA ($M = 49.3$, $SD = 52.4$; $\alpha = .72$) was used as an indicator of psychological aggression (e.g., belittling partner, refusing to talk to partner, etc.).

The third indicator of exposure to IPV was derived from the Context of Intimate Partner Violence Interview (CIPVI; Lawrence et al., 2008), a 30-minute semi-structured interview focusing on specific episodes of IPV. CIPVI items include both open and closed questions, which were drawn from widely used self-report questionnaires designed to assess aggressive acts (e.g., CTS2, MMEA). If any psychological or physical violence is reported, participants provide a narrative of the most recent violent episode and the worst violent episode ever occurring in the history of the relationship. Answers are coded into nominal or ordinal categories. Reliability and validity of the CIPVI has been examined in three community samples: newlyweds, dating couples, and women experiencing recent male-to-female physical aggression in cohabiting or marital relationships. Adequate convergent and external validity, and strong discriminant validity, have been demonstrated.

Participants were interviewed regarding circumstances of IPV in their current relationships. Four items from the CIPVI were used to establish a single indicator of exposure. First, mothers reported how often the participating child was present or in a different room during the two arguments (i.e., most recent argument and worst argument ever). Responses to these two items were coded into five ordinal categories ranging from "never present" to "always present" and scaled (0 to 10). Mothers also reported on the child's whereabouts (e.g., in the room, sleeping, not at home, etc.) during two specific episodes of conflict (most recent and

worst argument in current relationship). Responses were coded to reflect level of exposure (scores ranging from 0 to 10). Finally, scores on each of the 4 items were summed to reflect the child's exposure to IPV ($M = 18.72$, $SD = 5.19$).

The fourth indicator of exposure to IPV was derived from the Computer-Assisted Child Interview – 2nd Edition (CACI-2; Bank, 2000). The CACI-2 is a structured computerized interview for children aged 4 to 9 based on Ci3 software (Sawtooth Technologies, 1999, Northbrook, IL, USA), and is an effective strategy for obtaining information from younger children (e.g., Bank, 2000; Knutson, Lawrence, Taber, Bank & DeGarmo, 2009). Questions are presented via audio statements and clip art, and response choices are presented via visual images of three gumball jars to represent the response choices [an empty jar = “not at all” (0); a half-full jar = “sometimes” (1); a full jar = “a lot” (2)]. After choosing a response, audio feedback is provided so the child can change his or her answer if needed. The CACI includes 4 items pertaining to physical encounters between the child's parents (e.g., “My mom gets hurt when my parents fight,” “The police came when my parents fought.”). Responses were scored in a direction to indicate children's exposure to IPV and summed ($M = 1.98$, $SD = 2.15$; $\alpha = .69$).

The fifth indicator of exposure to IPV was based on children's narrative reports of exposure to physical or psychological aggression in their mothers' current relationships. Within the context of a semi-structured interview, children were given the opportunity to report up to four situations in which they felt their parents (i.e., mother and her partner) were angry with one another. For each situation reported, children were asked to describe each partner's behavior during the conflict. Responses including physical (e.g., hitting, kicking, throwing objects) or psychological (e.g., yelling, name-calling, swearing) aggression were coded in a direction to indicate IPV. This indicator was the total number of aggressive behaviors reported across situations, with scores ranging from 0 to 4 ($M = 1.74$, $SD = .60$; $\alpha = .72$). Overall, 76% of children were exposed to some IPV when any one indicator is the criterion.

Harsh Discipline—Based on the work of Knutson et al. (2005), a derived index of harsh discipline was established using three indicators. First, during the in-home visit, mothers were interviewed about their use of disciplinary strategies. Eleven questions pertained to the use of inconsistent discipline (e.g., threaten punishment to get child to do something) and 10 questions pertained to the use of abusive discipline (e.g., child had bruises, broken bones, sutures, etc. from being disciplined). Items were scored dichotomously in a direction to indicate punitive and inconsistent discipline and summed; scores ranged from 0 to 21 ($M = 9.2$, $SD = 2.8$; $\alpha = .88$).

The second indicator of harsh discipline was based on mothers' responses on the Analog Parenting Task (APT; Zaidi, Knutson, & Mehm, 1989). The APT consists of 28 slide images depicting a child engaging in either a destructive, dangerous, rule violating or age-appropriate activity. Mothers are asked to respond as if they are the child's caretaker and to indicate their emotional reaction, classify the behavior, and select a disciplinary response to each image from a closed set of choices (e.g., take away privileges, spank, strike other than spanking). Mothers then indicate how many times they would permit the child to persist in the behavior before changing their response, and to indicate what the alternative would be.

This indicator was based on the summation of two measures from the APT: the total number of initial physical discipline responses and total number of escalated responses (Knutson & Bower, 1994). The total APT score ranged from 0 to 24 ($M = 5.3$, $SD = 5.1$; $\alpha = .84$). The third measure of harsh discipline was derived from a structured interview conducted with children regarding their parents' disciplinary tactics in response to the participant child's misbehavior. Children's responses to three items concerning whether and how often the child is struck when in trouble were used to establish a child-report indicator of harsh discipline. Items were weighted with respect to frequency of occurrence and summed ($M = 1.87$, $SD = 2.02$; $\alpha = .79$).

Maternal Psychopathology—A latent construct reflecting maternal psychological functioning was based on three indicators. First mothers completed the Brief Symptom Inventory (BSI; Derogatis, 1975). The BSI is a 53-item self-report symptom inventory with nine symptom dimensions, and has demonstrated good internal consistency across dimensions (Derogatis & Spencer, 1982). Items are rated on 5-point scales ranging from “not at all” (0) to “extremely” (4). Total scores ranged from 0 to 167 ($M = 38.4$, $SD = 31.7$; $\alpha = .85$). The second indicator was based on micro-social indices of parent-child interactions that occurred during a video-recorded structured laboratory task. The laboratories at the two sites were identically sized and appointed so that coders would not know the source of the observed families. The 45-minute task includes a communication task, social problem-solving task, discussion of an important issue regarding the child's behavior, and free play followed by “clean-up.” Some participants in the present study were included in recent studies of parenting and children's development (e.g., Knutson et al., 2005), where a more detailed description of the task can be obtained. A professional team of coders at the Oregon Social Learning Center (OSLC) coded digital recordings of the interactions using the Family and Peer Process Code (FPP; Stubbs, Crosby, Forgatch & Capaldi, 1998), which is based on rate per minute frequencies of various behaviors. Two items from the Affect/Valence dimension of the FPP coding system (sadness and distress) were used to establish an indicator of maternal distress. Coding is determined by facial expressions, tone of voice, and body language. Ratings for sadness and distress were averaged across tasks, respectively, and summed ($M = 4.55$, $SD = 7.72$; $ICC = .76$). The third indicator was based on coders' global impressions of mothers' affect and behavior during the parent-child task (e.g., mother seemed distant/detached, down/depressed). Six items were each rated four times on a 5-point scale ranging from “never” to “very often,” and then averaged across the four ratings. The final score was a summation of the 6 averages ($M = 14.14$, $SD = 7.22$; $ICC = .81$).

Cognitive Appraisals—Three indicators were used to establish a construct reflecting children's cognitive appraisals related to IPV and aggression more broadly. The first indicator was based on children's responses to four social situational vignettes. Children were asked to make attributions about the other child's behavior and describe how they would respond to that behavior. Endorsements of either behavioral retaliation, hostile intent of the other child in the scenario, or both were summed, and scores ranged from 0 to 8 ($M = 2.36$, $SD = 2.16$; $\alpha = .68$). The second indicator was a summation of 3 items from the CACI-2 (described above) reflecting children's IPV-related fear or distress: “I want to run away when my parents fight,” “I feel sad when my parents fight” and “My parents are mean

to me when they fight.” Total scores ranged from 0 to 6 ($M = 1.95$, $SD = 1.68$; $\alpha = .75$). The third indicator was based on children’s reports on the Normative Beliefs Questionnaire (adapted from Huesmann & Guerra, 1997), a 37-item questionnaire used to assess children’s beliefs about the appropriateness of aggressive behavior (e.g., hitting, pushing, yelling) as a means of retaliation or in response to feeling angry. Sample items include: “Is it OK to push or shove others if you’re mad?” and “Is it mostly OK for moms and dads to hit each other?” Total scores ranged from 0 to 9 ($M = 2.48$, $SD = 2.98$; $\alpha = .83$).

Emotion Dysregulation—Three indicators were used to establish a latent construct of child emotion dysregulation. The first indicator was derived from research assistant ratings of 13 child behaviors during each laboratory session. Sample items include: anxious/fearful, angry/irritable, cooperative, and child screamed/yelled during the appointment. Items are dichotomous and scored in a direction to indicate emotion dysregulation. Because not all families attended the same number of sessions, ratings for each item were averaged across sessions, and summed ($M = 4.27$, $SD = 2.75$; $ICC = .86$). The second indicator was the summation of 13 items based on OSLC coders’ global impressions of the child’s affect and behavior during the parent-child interaction task (described above). Coders complete the global ratings immediately after completing the microsocial behavior coding following the rules of the FPP system. The same standards for intra- and inter-coder reliability apply to the global ratings as the microsocial codes. Sample items include: child seemed frustrated or confused, child was negative or critical, and child was angry or irritable. Items were rated on a 5-point scale ranging from “never” to “very often” ($M = 11.13$, $SD = 3.45$; $ICC = .78$). The third indicator was based on OSLC coders’ global ratings of the child’s behavior that were completed following an FPP-based coding of a 30-minute session of the child interacting with an age- and gender-matched peer that occurred during a laboratory session. The structured interaction includes a cooperative task, a competitive task, and free-play. Items were rated on a 5-point scale ranging from “never” to “very often.” A summative index was established based on 23 items (e.g., negative/down, complained about losing, retaliated, etc.). Scores ranged from 0 to 90 ($M = 19.67$, $SD = 12.56$; $ICC = .81$).

Externalizing Behavior—Three indicators were used to establish a latent construct reflecting children’s externalizing behavior. These measures were collected at Time 1 and Time 2. First, mothers completed the Children’s Behavior Checklist (CBCL; Achenbach, 1992), which is widely used to assess childhood problem behaviors as rated by parents. Items are scored 0 to 2, with higher scores reflecting higher levels of endorsement of the items. The indicator was based on total raw scores on the Externalizing Problems Scale (Time 1 $M = 11.58$, $SD = 8.53$, $\alpha = .85$; Time 2 $M = 11.03$, $SD = 9.14$, $\alpha = .83$). To reduce overlap with our emotion regulation construct, two items similar to the observed ratings of emotion regulation were omitted: “screams a lot” and “stubborn, sullen, or irritable.” The second two indicators were derived from the Direct and Indirect Aggression Scales (DIAS; Björkqvist, Lagerspetz, & Osterman, 1992), which was administered in interview format, separately to mothers and children. The DIAS includes 24 items assessing the frequency with which the child engages in indirect, physical, and verbal aggression. Items are rated on a 5-point scale ranging from 0 (never) to 4 (always). One indicator was based on the summation of mothers’ responses to 7 physical aggression and 5 verbal aggression items

(Time 1 $M = 9.50$, $SD = 4.28$, $\alpha = .91$; Time 2 $M = 9.65$, $SD = 4.76$, $\alpha = .92$), and one indicator was based on the sum of child-reported physical and verbal aggression (Time 1 $M = 4.46$, $SD = 5.38$, $\alpha = .82$; Time 2 $M = 4.82$, $SD = 4.90$, $\alpha = .84$).

Internalizing Behavior—A latent construct reflecting children's internalizing behavior was established using three indicators. These measures were collected at Time 1 and Time 2. The first indicator was based on total scores on the Children's Depression Inventory (CDI; Kovacs, 1992), which is a 27-item inventory, widely used to measure depressive symptoms in childhood. Responses are rated on a 3-point scale, and children are asked to choose a response that best describes how they felt in the past 2 weeks. Total raw scores ranged from 0 to 43 (Time 1 $M = 7.18$, $SD = 5.02$, $\alpha = .93$; Time 2 $M = 8.32$, $SD = 5.62$, $\alpha = .89$). The second indicator was based on total scores on the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978). The RCMAS is comprised of 37 dichotomous items, and scores ranged from 0 to 27 (Time 1 $M = 12.23$, $SD = 6.23$, $\alpha = .91$; Time 2 $M = 13.89$, $SD = 6.55$, $\alpha = .92$). The third indicator was based on mothers' total raw scores on the Internalizing Problems Scale of the CBCL (Time 1 $M = 6.84$, $SD = 6.25$, $\alpha = .86$; Time 2 $M = 6.49$, $SD = 5.87$, $\alpha = .84$). To reduce overlap with our emotion regulation construct, three items similar to the observed ratings of emotion regulation were omitted: "too fearful or anxious," "sad or depressed," and "withdrawn, not involved with others."

Analysis Overview & Modeling Strategy

Hypotheses were tested using structural equation modeling (SEM) techniques with maximum likelihood estimation and a two-stage modeling approach in Mplus (Muthén & Muthén, 2006). In Stage 1, measurement models were evaluated wherein the latent constructs of exposure to IPV, child emotion dysregulation, child appraisals, maternal psychological functioning, harsh parenting, internalizing symptoms, and externalizing symptoms were comprised of 3 indicators each (with the exception of exposure to IPV which had 5 indicators). Each latent variable was estimated separately, factor scores were saved, and then the overall model was fit with these factor scores. In stage 2, structural analyses were conducted to test relations among the latent variables and the proposed mediators and moderators. This process allowed the structural relations to be tested only after ensuring that latent variables were measured adequately. Multiple indices were used to assess goodness-of-fit: the model chi-square statistic (non-significant at $p < .05$), the Comparative Fit Index (CFI $> .95$; Bentler, 1990), Tucker-Lewis Index (TLI $> .95$; Tucker & Lewis, 1973), and the root-mean-square error of approximation (RMSEA $< .06$; Hu & Bentler, 1999). The CFI and TLI are incremental fit indices that compare the hypothesized model to a baseline model. Factor loadings and path coefficients reported represent standardized values.

A multiple mediation model was examined in the present study (Preacher & Hayes, 2008). Preacher and Hayes have recommended that testing a multiple mediation model involves (a) an analysis of the total indirect effect — the aggregate mediating effect of all the mediators under investigation, and (b) an analysis of specific indirect effects — the effect associated with each putative individual mediator in the context of a multiple mediator model. Bootstrap analysis, a nonparametric sampling procedure, was used to test the significance of

the indirect effects. Bootstrap analyses use the obtained sample to generate multiple random samples with replacement that serve as the basis for repeatedly computing the statistic under investigation. In the present study, the sample of 132 participants was used to generate a bootstrap sample of 132 participants with replacement. Using this bootstrap sample, the indirect effect or the product of the two regression coefficients between exposure to IPV and child outcomes through the mediators was calculated (see Figure 2). The total indirect effect was defined as the sum of the indirect effects across all mediators in a given model, whereas the specific indirect effect was defined as the indirect effect of a particular mediator. This calculation was repeated with 5,000 samples to yield a parameter estimate for both total and specific indirect effects. If the 95% bias-corrected confidence interval for the parameter estimate did not contain zero, then the indirect effect was statistically significant and mediation was demonstrated (Preacher & Hayes, 2008).

Results

Descriptive and Preliminary Analyses

Preliminary analyses revealed that at Time 1, 119 families (~90%) had complete data, and an additional 13 (~10%) had two or more observations missing. At Time 2, 101 families had complete data. Multiple imputation (MI; Rubin, 1987) methods were utilized to make full use of all available data. Prior to structural equation modeling, missing values were imputed 10 times, and the 10 sets of estimated coefficients and their standard errors were combined. Due to skewness in self-report measures of aggression, CTS and EAQ scores were transformed using log functions (Tabachnick & Fidell, 1996). Bivariate correlations among the predictor, mediators, and outcomes (see Table 1) revealed significant relations in the predicted directions and justified formal mediation analyses. Initial levels of externalizing and internalizing (Time 1) were controlled in all analyses. Gender did not correlate with either outcome but did significantly correlate with cognitive appraisals ($r = -.17$) and harsh discipline ($r = .20$), with girls having somewhat greater cognitive appraisal scores and boys having slightly more harsh discipline scores.

Measurement and Direct Effects Model

Confirmatory factor analyses were conducted to establish the adequacy of the measurement model. The model obtained excellent fit to the data: $\chi^2 = 281.96_{(188)}$, $p > .05$; RMSEA = .06; CFI = .99; TLI = .97. Factor loadings were all significant at $p < .01$ (see Table 2). Next, we tested the direct effects model, which demonstrated an adequate fit to the data: $\chi^2 = 255.07_{(196)}$, $p > .05$; RMSEA = .07; CFI = .97; TLI = .96. Both direct paths were significant, indicating it was appropriate to test for mediation; children who were exposed to more IPV had greater externalizing ($\beta = 0.71$, $p < .01$) and internalizing ($\beta = 0.58$, $p < .01$) symptoms. Higher IPV exposure was positively related to children's emotion dysregulation ($\beta = 0.34$, $p < .01$) and cognitive appraisals ($\beta = 0.27$, $p < .01$). Higher levels of IPV exposure were also related to maternal psychopathology ($\beta = 0.29$, $p < .01$) and harsh discipline ($\beta = 0.38$, $p < .01$). Finally, children's emotion dysregulation was positively associated with internalizing ($\beta = 0.59$, $p < .01$) and externalizing ($\beta = 0.63$, $p < .01$). Children's cognitive appraisals were also positively associated with internalizing ($\beta = 0.42$, $p < .01$) and externalizing ($\beta = 0.49$, $p < .01$). Maternal psychopathology was positively associated with internalizing ($\beta = 0.54$,

$p < .01$) but not externalizing ($\beta = 0.96, p > .1$). Harsh discipline was positively associated with externalizing ($\beta = 0.65, p < .01$) but not internalizing ($\beta = 0.79, p > .1$).

Mediation Model

The fully specified structural model proposing children's emotion dysregulation, children's cognitive appraisals, maternal psychological functioning, and harsh discipline as independent mediators was tested (see Figure 2). It provided a good fit to the data ($\chi^2 = 230.74_{(194)}, p > .05$; RMSEA = .05; CFI = .99; TLI = .98) and explained 69% and 59% of the variance in externalizing and internalizing symptoms, respectively.

Total indirect effects between IPV exposure and externalizing ($\beta = 0.80, p < .01$) and internalizing symptoms ($\beta = 0.61, p < .01$) were significant. For externalizing symptoms, specific indirect effects for emotion dysregulation ($\beta = 0.56, p < .01$) and harsh discipline ($\beta = 0.62, p < .01$) were significant. The direct effect from IPV exposure to externalizing symptoms became nonsignificant ($\beta = 1.4, p > .1$), suggesting that emotion dysregulation and harsh discipline fully mediate the link. For internalizing symptoms, specific indirect effects for maternal psychopathology ($\beta = .56, p < .01$), emotion dysregulation ($\beta = 0.59, p < .01$), and appraisals ($\beta = 0.66, p < .01$) were significant. When the potential mediators were included in the model, the direct effect of IPV exposure on internalizing symptoms became nonsignificant ($\beta = 0.93, p > .1$), providing evidence for full mediation. Because emotion dysregulation was a significant mediator for both outcomes, contrasts were conducted to examine whether the magnitude of the effects differed. Contrasts failed to reach significance (both t 's < 1), suggesting that the indirect effects of emotion dysregulation were similar for internalizing and externalizing.

Discussion

The current study examined the influence of multiple mediators of the relation between exposure to IPV and child maladjustment. Building on previous research and theory, we examined children's attributes (emotion dysregulation and cognitive appraisals), maternal attributes (maternal psychological functioning), and contextual factors (harsh discipline) as potential mediators. Considering multiple dimensions of the family within one model allowed for a comprehensive presentation of results while improving precision. This approach reduces the number of mediation tests needed for examining the intricate links between exposure to IPV and child adjustment. Not surprisingly, our results indicate that these links are complex.

Children's emotion dysregulation proved to be a potent mediator of the links between exposure to IPV and both internalizing and externalizing problems. The influence of children's emotion dysregulation on child symptomatology remained significant even after accounting for the influence of children's appraisals, harsh discipline, and maternal psychological functioning. These findings provide further evidence of emotion dysregulation as a broad vulnerability for childhood behavior problems, lending support to research on emotional processes as an important link between exposure to IPV and child maladjustment (El-Sheikh, et al., 2008). The development of effective emotion regulation is heavily influenced by caregivers' shaping of children's affective reactions to emotionally stimulating

events through ongoing caregiver–child interactions and caregivers’ own emotional reactions (Eisenberg, Cumberland, & Spinrad, 1998; Gottman, Katz, & Hooven, 1996). Thus, exposure to IPV is likely to exert deleterious effects on the organization and functioning of children’s emotion systems, and their ability to cope effectively with conflict-related distress in particular, contributing to the emergence of maladaptive behaviors (e.g., Kim & Cicchetti, 2010).

In addition to emotion dysregulation, harsh discipline also mediated the link between exposure to IPV and externalizing, but not internalizing, symptoms. This finding is consistent with social learning theories (e.g., Patterson et al., 1992) and prior studies demonstrating a link between inconsistent and punitive discipline and the development of aggression (e.g., Jaffee, Caspi, Moffitt, & Taylor, 2004). These findings provide further support for the “parenting-as-mediator hypothesis” proposed by Tschann et al. (1989), suggesting that children exposed to IPV are more likely to develop externalizing behavior problems when there is a disruption in the parent-child relationship.

Child appraisals and maternal psychological functioning emerged as potentially viable processes in the link from IPV exposure to internalizing symptoms. Whereas heightened emotion dysregulation predicted both internalizing and externalizing symptoms, children’s appraisals were related specifically to symptoms of anxiety and depression. Furthermore, the finding that maternal psychological functioning serves as a factor in the development of children’s internalizing symptoms is consistent with a number of empirical studies that bear out the link between the emotion regulatory abilities of parents and their children (e.g., Huang, et al., 2010). Although these areas of empirical work represent separate domains of inquiry, results of the present study provide a potential integration of these findings. Moreover, the findings were obtained in a sample of children in the early elementary school years, a time when academic and social challenges increase and important developmental changes emerge that can determine future courses of success and failure. When this sample is placed in the context of the existing literature, the findings underscore the fact that IPV can have an impact on children of all ages and children in the early elementary school years are not invulnerable.

The current findings exhibit considerable convergence with prior studies examining mediating processes and also build on previous research in several ways. First, emotion dysregulation appears to be a key vulnerability for psychological symptoms in children who have been exposed to IPV. This finding has valuable treatment implications for clinicians working with children who have been exposed to IPV, and emphasizes the importance of targeting emotion regulation skills to reduce both internalizing and externalizing symptoms. Second, the fact that both child and maternal characteristics had unique associations with internalizing and externalizing symptoms further demonstrates the value of examining these related yet distinct constructs separately. Based on the pattern of results, no one theoretical perspective emerged with more support. Overall, a model in which all mediators were included simultaneously, and with each mediator allowed to independently predict child problems, was the best fit for the data, suggesting that each of these factors offers a unique contribution to understanding the impact of exposure to IPV on young children’s adjustment. Finally, gender was significantly related to the mediators, such that girls were

more likely to experience more fearful/hostile cognitive appraisals and boys were more likely to experience harsh discipline. This suggests that any gender influence in the outcome of IPV would be in the context of gender-linked process variables rather than static differences between boys and girls.

Limitations and Conclusions

Although the focus on children between the ages of 6 and 8 is a novel feature of this study, it is probable that the specific impact of IPV could vary across different developmental stages, such as preschoolers or adolescents. For example, preschoolers may have a greater risk of negative outcomes, as it may reflect their limited understanding of conflict and less developed strategies for coping with it (Kitzmann et al., 2003). Moreover, there is some evidence that the relations between marital conflict and emotional processes are even stronger for adolescents as compared to younger children, as they are more likely to have longer histories of exposure to IPV and stronger dispositions to mediate conflict, which may result in their becoming more directly involved in the conflict (Cummings et al., 2006).

The present study was also limited by the absence of data from paternal caregivers. There are several lines of evidence indicating the presence and participatory engagement of fathers can play an important role in child outcomes and maternal parenting (e.g. Pleck, 1997; Rosenberg & Wilcox, 2006) and there is growing recognition that fathers are under-represented in the empirical work on child development and adverse child outcomes (e.g., Pleck, 1997). Although a concerted effort to recruit fathers, and males who played a father role, was made, restricting the sample to only families in which both parents participated would have reduced power to such an extent that the planned SEM analyses could not be conducted. Furthermore, the socioeconomic strata from which the sample was drawn is both a strength and a limitation. The recruitment strategy made it possible to have a sample that was diverse with respect to ethnicity and degree of urbanization, but it was limited to families from circumstances of economic disadvantage. It is not clear whether children who enjoyed greater access to family resources would be buffered from the influences seen in the present sample. To the extent that economic disadvantage confers risk (e.g. Evans, 2004), the present study emphasizes the fact that IPV adds to that risk.

The study emphasized an assessment of risk factors and adverse influences in a child's home environment. Similarly, it focused on processes of dysregulation. Certainly there are child attributes related to resilience and potential external buffers that were not examined, such as sibling influences or extrafamilial community resources that could contribute to more favorable outcomes. Further, although using two waves of data constitutes an advance in this literature, the use of three or more waves would have been ideal to fully examine mediation (MacKinnon, 2008) and the set of mediators examined did not include all possible constructs that likely serve as mediators of the association of exposure to IPV and child psychopathology. Furthermore, the effect of psychological IPV may be different than the effect of physical IPV, and future research may benefit from examining these types of aggression separately.

Finally, although we referred to the observations of children's affect during lab tasks as child emotion dysregulation, they mainly captured a single important aspect of emotion

dysregulation (i.e., the dysregulation of the expressive component of emotions). Future studies should supplement observer ratings of emotion regulation with parent or self-report. To gather a more holistic perspective of emotion dysregulation, researchers should also aim to more clearly and accurately capture other components of emotion regulation, including reactivity and contextual appropriateness. Additionally, although it is a strength of the study that child outcomes were obtained via both parental and child report, it is important for future studies to include both observational and interview-based data.

The current study has important implications for future research. A pivotal problem in past research is the method of assessing a child's direct and/or indirect exposure to IPV. Researchers often rely on maternal reports of IPV, and exposure is operationally assumed rather than actually assessed. In contrast, although children are a potential source of information regarding their exposure to IPV, child reports are rarely used. The present study demonstrated that it is possible to obtain such data from children, and that those data provide novel and important information. The study findings also highlight the value of examining specific roles of different putative mediators, and provide empirical support for including cognitive, emotional, and family systems processes in the development of increasingly comprehensive theoretical frameworks. By testing complex mediation models, it is possible to identify several potential points of intervention (i.e., parenting behaviors, children's responses to conflict, emotion dysregulation) that can be used to aide in the decisions of for whom, when, and how to intervene.

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Figure 1.
Conceptualized model with hypothesized paths.

Figure 2. Mediators of the relationship between exposure to IPV and children's internalizing and externalizing symptoms. Standardized path coefficients are presented in the figure. Nonsignificant paths were omitted. See Table 2 for latent variable indicators.

Table 1

Correlations Among Latent Variables in Structural Equation Models

Variable	1	2	3	4	5	6	7	8	9
1. Exposure to IPV (T1)	1.0								
2. Harsh Parenting (T1)	.48**	1.0							
3. Maternal Psychopathology (T1)	.32**	.18*	1.0						
4. Child Appraisals (T1)	.37**	.22*	.11	1.0					
5. Child Emotion Dysregulation (T1)	.46*	.34**	.31*	.19*	1.0				
6. Child Externalizing (T1)	.24*	.29**	.18*	.22*	.41**	1.0			
7. Child Internalizing (T1)	.20*	.19*	.34**	.33*	.53**	.52**	1.0		
8. Child Externalizing (T2)	.23*	.28**	.17*	.27*	.48**	.87**	.46**	1.0	
9. Child Internalizing (T2)	.22*	.16	.32**	.36**	.55**	.58**	.84**	.57**	1.0

* $p < .05$;

** $p < .01$.

T1 = Time 1; T2 = Time 2

Table 2

The Measurement Model: Latent Variable Factor Loadings

Variable	Loading
Exposure to Intimate Partner Violence (Time 1)	
(1) EAQ	.76
(2) CTS	.63
(3) CIPVI	.71
(4) CACI Exposure	.58
(5) Child Report	.55
Harsh Parenting (Time 1)	
(1) Mom interview	.81
(2) APT	.74
(3) Child interview	.41
Maternal Psychological Functioning (Time 1)	
(1) BSI	.67
(2) Maternal distress *	.47
(3) Maternal negative behavior*	.62
Child Appraisals (Time 1)	
(1) Child interview	.55
(2) CACI Threat	.76
(3) NBQ	.70
Child Emotion Dysregulation (Time 1)	
(1) Global behavior	.84
(2) Negative affect*	.42
(3) Negative affect w/peer	.64
Child Externalizing (Time 2)	
(1) CBCL	.69
(2) DIASp	.78
(3) DIASc	.71
Child Internalizing (Time 2)	
(1) CDI	.79
(2) RCMAS	.53
(3) CBCL	.61

CTS-2 = Conflict Tactics Scale Self-Report; MMEA = Multidimensional Measure of Emotional Abuse; CIPVI = Context of Intimate Partner Violence Interview; CACI = Computer Assisted Child Interview; APT = Analog Parenting Task; BSI = Brief Symptom Inventory; NBQ = Normative Beliefs Questionnaire; CBCL = Children's Behavior Checklist; DIASp = Direct and Indirect Aggression Scales, parent report; DIASc = Direct and Indirect Aggression Scales, child report; CDI = Children's Depression Inventory; RCMAS = Revised Children's Manifest Anxiety Scale;

* assessed during parent-child interaction