Intimate Partner Violence in the First 2 Years of Life: Implications for Toddlers’ Behavior Regulation

M. Ann Easterbrooks, PhD,1 Rachel C. Katz, MA,1 Chie Kotake, PhD,1 Nicholas P. Stelmach, BA,1 and Jana H. Chaudhuri, PhD1

Abstract
Intimate partner violence (IPV) is prevalent in families with young children and challenges their healthy development. This study examined characteristics of IPV (e.g., mother- vs. partner-perpetrated, types and severity) and investigated potential effects of IPV on toddlers’ behavioral regulation in a sample of families at risk for IPV. We also examined whether maternal depression and child-rearing attitudes and behavior would moderate IPV–child behavior links. These questions were addressed in a sample (N = 400) of first-time adolescent mothers and their toddlers (1-2 years of age). Families were visited in their homes; data were collected via maternal report and observations. Partner- and self-perpetrated IPV was assessed using the Conflict Tactics Scale questionnaire; child behavior regulation was measured using the Brief Infant–Toddler Social and Emotional Assessment questionnaire. Approximately 80% of families experienced psychological aggression; almost one third reported physical assault in the past year. Both physical and psychological IPV were associated with greater toddler behavior problems. Neither maternal depression, mothers’ attitudes about corporal punishment, nor nonhostile interaction moderated IPV–behavior problem links, though mothers’ reports of maltreating behavior did. Among

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children whose mothers did not use corporal punishment/physical violence, IPV did not differentially affect behavior problems. Children whose mothers used corporal punishment/physical violence with them showed behavior problems in the context of IPV (severe psychological aggression). Results underscore the importance of exposure to IPV during the first year of life, and the prevalence of IPV perpetrated by both mothers and their partners in families with adolescent mothers.

**Keywords**
children exposed to domestic violence, domestic violence, adolescent mothers

Intimate partner violence (IPV), violence between romantic partners, occurs with alarming frequency. More than one third of women report lifetime prevalence of IPV across sociodemographic boundaries of education, age, socio-economic class, and race/ethnicity (Bair-Merritt, 2010). Despite what appears to be a pervasive phenomenon, some individuals are more likely than others to be involved in violent relationships; risk factors for IPV include being a female aged 18 to 24 years, having children less than 5 years of age, low economic resources, and being an adolescent parent (Halpern, Spriggs, Martin, & Kupper, 2009; Harrykissoon, Rickert, & Wiemann, 2002).

The presence of IPV challenges the healthy development of children (Holt, Buckley, & Whelan, 2008; Sternberg, Baradaran, Abbott, Lamb, & Guterman, 2006). Exposure to a climate of hostility, psychological aggression, or physical violence can be traumatizing and can constitute toxic stress (National Scientific Council on the Developing Child, 2005/2014) that is harmful to developmental systems. Witnessing the IPV acts, or the aftermath of these events on the physical environment (e.g., furniture in disarray, possessions broken) or on their caregivers (e.g., bruises, scratches, emotional distress) is upsetting for young children who are dependent on their caregivers to help them develop adaptive behavioral and stress regulatory systems (Howell, 2011; Zeanah et al., 1999). In addition, lower level IPV (e.g., psychological aggression involving threats or insults, physical pushing or shoving without injury) may foster psychological unavailability in caregivers that hinders sensitive caregiving. This framework linking IPV to children’s emotional and behavioral dysregulation is consistent with several developmental theories, including social learning theory proposing that children model conflict behaviors (Graham-Bermann & Hughes, 2003); the “emotional security hypothesis” (Davies & Cummings, 1994) that outlines how emotional dysregulation may lead to attachment and behavior
problems; and a relational trauma explanation linking trauma to disrupted maternal sensitivity, and both mothers’ and children’s emotional availability and behavioral responsiveness (Schore, 2001).

**IPV Effects on Children’s Behavior Regulation**

Evidence of adverse effects of IPV on children’s cognitive, academic, and behavioral functioning is manifest across childhood (Holt et al., 2008; Howell, Barnes, Miller, & Graham-Bermann, in press). School-aged children and adolescents exposed to IPV are more likely to develop serious behavioral problems ranging from anxiety and depression (internalizing problems) to aggressive and delinquent (externalizing) behavior (Kernic et al., 2003). These deleterious effects on developmental functioning may be particularly strong for young children due to their close dependence upon their parents. Longitudinal research suggests both considerable stability of behavior problems from early childhood (Campbell, Shaw, & Gilliom, 2000) and the emergence of “sleeper effects” of IPV years after exposure (Holmes, 2013; Lannert et al., 2014). Manning, Davies, and Cicchetti (2014) studied a sample of very young children across the transition from toddlerhood (2 years of age) to early childhood (4 years of age), noting that IPV increased externalizing behavior problems, particularly in the absence of sensitive maternal behavior. Other research, however (Schnurr & Lohman, 2013), argued against long-term effects of early childhood exposure to IPV. These inconsistent results highlight the need for additional research examining the mechanisms and potential moderators of very young children’s responses to IPV. There is a lacuna in understanding the impacts of IPV in early childhood, given that research has focused primarily on children aged 6 to 12, even though children below age 5 are disproportionately likely to be exposed to IPV (Levendosky, Huth-Bocks, Shapiro, & Semel, 2003).

**Models of IPV Influence on Children’s Behavior Regulation**

Although there is a substantial corpus of work documenting school-aged children’s maladaptation in the context of IPV, the heterogeneity in children’s response suggests several areas in need of additional investigation; these include resilience to IPV (Howell, 2011), effects on infants and toddlers, and potential moderators of IPV effects. IPV takes place in a larger biopsychosocial context of individual, family, and cultural attributes (Bronfenbrenner & Morris, 2006). Characteristics of parents (e.g., mental health, parenting stress) and parenting (e.g., sensitivity) have been used to
explain both mechanisms of transmission of IPV effects and children’s
differential vulnerability or resilience. Both positive parenting (e.g.,
maternal sensitivity) and negative aspects of parental functioning (e.g.,
parenting stress, harsh discipline) may exert mediating and moderating
influences on links between IPV and children’s behavioral adaptation
(Jouriles et al., 2008; Manning et al., 2014). For example, observing
mothers and their preschoolers in dyadic problem solving, Manning and
colleagues found that IPV exposure predicted escalating behavior prob-
lems only when mothers were low in behavioral sensitivity, demonstrat-
ing moderation effects.

Mediating mechanisms include mothers’ parenting stress, and harsh or
disengaged maternal parenting (Renner & Boel-Studt, 2013; Zarling et al.,
2013). As young children, including infants and toddlers, are disproport-
ionately likely to be IPV exposed, it is important to investigate both short- and
long-term effects of IPV exposure and to establish the conditions under which
effects of IPV are attenuated or potentiated.

Maternal behavior plays an important role in the nature and strength of
children’s responses to IPV, yet other features of the individuals and their
context also may differentiate children’s responses. Children’s character-
istics, such as emotion or self-regulation, also may moderate the ways in
which IPV is “metabolized” by the child. Children at greater sociodemo-
graphic risk are more likely to show trauma symptoms in the context of
IPV than are children who may be buffered by greater sociodemographic
resources (Enlow, Blood, & Egeland, 2013). Several studies demonstrate
that children’s emotional dysregulation, or traumatic stress symptoms,
mediates IPV effects on the development of behavior problems (e.g.,
Harding, Morelen, Thomassin, Bradbury, & Shaffer, 2013; Zarling et al.,
2013).

In the present study, we examined potential effects of IPV exposure on
behavior regulation among very young children during the toddler years
(ages 1-2 years). There are very few investigations of the effects of IPV on
children in the first 2 years of life, perhaps because of lack of recognition of
the sensitivity of toddlers. In a recent study, however, Ahifs-Dunn and Huth-
Bocks (2014) found that IPV exposure was linked with socioemotional prob-
lems at 12 months and was moderated by maternal trauma symptoms.

**Characteristics of IPV**

IPV consists of numerous kinds of behaviors (e.g., physical assault and
injury, emotional abuse, psychological threats) that may affect caregivers by
limiting their psychological and emotional availability to reflect on,
and mitigate, the impact of IPV exposure on children. Caregivers may be preoccupied, may disengage from active caregiving, or may show intrusive or harsh parenting behavior (Gustafsson & Cox, 2012).

**Gender differences in IPV perpetration.** The bulk of the research on IPV and its effects on children focuses on women as “victims” and men as “perpetrators” of IPV. Data supporting this perspective often are drawn from law enforcement records, where women may be more likely than men to report IPV due to the greater likelihood of injury; and law enforcement may be more likely to become involved regardless of whether the woman desires to press charges (Archer, 2000; Straus, 2009). However, survey-based studies of community samples note substantial female perpetration of IPV (Carney, Buttell, & Dutton, 2007). Straus (2009) reviewed more than 200 studies, concluding roughly equivalent proportions of male and female perpetration of physical assault. Male-oriented disparity in IPV perpetration tends to be less in younger samples (adolescents, early 20s; Douglas & Straus, 2003). Although the literature on the differential effects of mother- versus father-perpetrated IPV on children’s functioning is limited, one study (Harding et al., 2013) found that IPV perpetration by mothers and fathers had similar associations with 8- to 11-year-olds’ emotional/behavioral dysregulation. Still, there is little research on the nature of female-perpetrated IPV (Pornari, Dixon, & Humphreys, 2013) and its impact on very young children. One goal of the present study was to examine whether children’s behavior was differentially associated with maternal or paternal perpetration of IPV.

**Goals of the Present Study**

To summarize, the goals of the present study were to examine characteristics of IPV (e.g., mother- vs. partner-perpetrated IPV, types of IPV, severity of IPV) and to investigate potential effects of IPV on toddlers’ behavioral regulation in a sample of families at risk for IPV due to young parent age. We also sought to identify vulnerability or buffering characteristics that might moderate the links between IPV exposure and behavior problems. Based on prior research on IPV in families with very young children (e.g., Gustafsson & Cox, 2012; Manning et al., 2014) that highlighted mothers’ personal functioning, we examined (a) maternal depression, (b) maternal disciplinary attitudes, and (c) mothers’ negative/hostile parenting behaviors. Our hypothesis was that IPV during the child’s first year of life would be associated with toddler behavior problems, and that maternal mental health concerns, and harsh parenting attitudes and behaviors might moderate the negative outcomes of IPV exposure on toddlers’ behavior regulation.
Method

Participants and Procedures

Data were drawn from a longitudinal randomized controlled trial of a statewide paraprofessional home visiting (HV) program for first-time adolescent parents. Mothers (N = 837) were randomly assigned to either the HV group (62%) or the control group (38%). Eligibility criteria included being female, 16 years of age or older, not having previously received (HV program) services, English or Spanish fluency, and being cognitively able to provide informed consent. A total of 704 mothers (response rate 84%) participated in evaluation activities, which included, at a minimum, an administrative data release or an initial (Time 1, T1) phone interview. Most participants also completed follow-up phone interviews at 12 months (Time 2, T2; n = 564) and 24 months post enrollment (Time 3, T3; n = 594). Mothers signed an administrative data release, which allowed us to access vital statistics records collected by the Department of Children and Families (DCF). Many mothers also completed in-person home interviews (T1 n = 473, 67%; T2 n = 401, 71%; T3 n = 409, 69%). Current analyses were restricted to a subsample (n = 400) of women who participated in all three waves of data collection. Demographic characteristics are presented in Table 1.

Measures

Demographic characteristics (T1). Demographic characteristics of mothers and children were collected through maternal interviews. Characteristics included age, maternal racial/ethnic background, child sex, and residence community block group lived in at study enrollment, defined by percent minority, population density, and household income.

Maternal history of childhood maltreatment. State Child Protective Services records were used to assess mothers’ own histories of child maltreatment. The records indicated the number and type of substantiated and unsubstantiated reports of maltreatment. We created a dichotomous variable indicating presence of any substantiated report before maternal age 18.

IPV (T2). We assessed IPV in mothers’ intimate relationships using the revised Conflict Tactics Scale–Short Form (CTS2S; Straus & Douglas, 2004), a 20-item self-report questionnaire that measures the extent to which partners in a dating, cohabiting, or marital relationship engage in violent behaviors. We used three subscales: Physical Assault, Psychological Aggression, and Injury. Items describe specific acts perpetrated by the respondent and by the partner.
Table 1. Sample Descriptives.

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<th>n</th>
<th>M</th>
<th>SD</th>
<th>%</th>
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<td>Father age at T2</td>
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<td>3.96</td>
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<td>Maternal race</td>
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<tr>
<td>American Indian/Native American/Alaska Native</td>
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<tr>
<td>East Asian</td>
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<tr>
<td>South Asian</td>
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<tr>
<td>Native Hawaiian or Other Pacific Islander</td>
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<tr>
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<tr>
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<td>Male</td>
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<td>Child age at T3 (in months)</td>
<td>611</td>
<td>24.58</td>
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<td>Maternal history of childhood maltreatment</td>
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<td>Had supported allegations</td>
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<tr>
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<td>703</td>
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<td>Low income, ethnically diverse</td>
<td>23.50</td>
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<td>Low–moderate income, ethnically diverse</td>
<td>29.60</td>
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<td>IPV: Physical assault (T2; in past year)</td>
<td>389</td>
<td>31.90</td>
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<tr>
<td>Mother perpetrated (minor)</td>
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<tr>
<td>Mother perpetrated (severe)</td>
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<td>11.30</td>
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<tr>
<td>Partner perpetrated (minor)</td>
<td>390</td>
<td>19.00</td>
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<td>Partner perpetrated (severe)</td>
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<td>10.30</td>
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<td>IPV: Injury (T2; in past year)</td>
<td>392</td>
<td>14.50</td>
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<tr>
<td>Mother perpetrated (minor)</td>
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<tr>
<td>Mother perpetrated (severe)</td>
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<tr>
<td>Partner perpetrated (minor)</td>
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<td>13.80</td>
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<td>Partner perpetrated (severe)</td>
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<td>4.10</td>
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<td>IPV: Psychological aggression (T2; in past year)</td>
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<td>84.80</td>
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<tr>
<td>Mother perpetrated (minor)</td>
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<tr>
<td>Mother perpetrated (severe)</td>
<td>392</td>
<td>28.10</td>
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</table>

(continued)
(e.g., “I pushed, shoved, or slapped my partner,” “My partner pushed, shoved, or slapped me”). To measure total exposure to violence, we asked participants to consider all of their partners within the past year. Subscales were created to distinguish whether IPV was perpetrated by the mother or a partner for the Physical Assault, Injury, and Psychological Aggression subscales.

Maternal depression (T2). The Center for Epidemiological Studies–Depression (CES-D, Radloff, 1977) was used to measure maternal depressive symptomatology. The 20-item CES-D assesses symptoms experienced during the past week (e.g., “I felt that I could not shake off the blues even with help from my family or friends”) rated on a 4-point Likert-type scale (0 = not at all, 3 = a lot). An overall score reflecting severity of symptoms was created by summing the 20 items. Scores of 16 or higher are considered to be “clinically significant” (Radloff, 1991). The CES-D demonstrates strong psychometric properties in clinical and epidemiological studies with diverse groups, including adolescents and pregnant/postpartum women (Diego et al., 2009; Radloff, 1991; Weinberg et al., 2001). Reliability and validity are well established, with 100% sensitivity with a clinical diagnosis and 88% specificity (Radloff & Locke, 1986). Cronbach’s alpha of the scale in this study was .89.

Parenting attitudes and behaviors

Parent discipline/child maltreatment. We used the Conflict Tactics Scale–Parent/Child (CTS-PC; Straus, Hamby, Finkelhor, Moore, & Runyan, 1998) to assess the extent to which parents carry out specific acts of aggression
and/or neglect, regardless of child injury (Straus et al., 1998). There are six subscales: Nonviolent Discipline (e.g., “put your child in ‘time out’”), Corporal Punishment (e.g., “spanked your child on the bottom with your bare hand”), Psychological Aggression (e.g., “shouted, yelled, or screamed at your child”), Physical Abuse (e.g., “hit your child with a fist or kicked your child hard”), Sexual Abuse by Any Adult (e.g., “child been forced to have sex by an adult or an older child”), and Neglect (e.g., “had to leave your child home alone, even when you thought some adult should be with him or her”). Respondents indicate how often they engaged in specific behaviors using a 7-point Likert-type scale (0 = none, 1 = once, 2 = twice, 3 = 3-5 times, 4 = 6-10 times, 5 = 11-20 times, 6 = more than 20 times, 7 = not in the past year, but it happened before) on a 35-item self-report questionnaire. We used composite summary scores and past-year prevalence for the Psychological Aggression, Physical Violence (combines Corporal Punishment and Physical Abuse items), and Corporal Punishment subscales.

Psychometric data on the CTS-PC show adequate test–retest reliability and discriminant and construct validity (Straus et al., 1998). The CTS-PC has been used frequently in epidemiological research and intervention research (Miller-Perrin, Perrin, & Kocur, 2009; Rodriguez & Price, 2004).

Parenting attitudes. We assessed parenting and child-rearing attitudes toward corporal punishment with the self-report Adult–Adolescent Parenting Inventory (AAPI-2; Bavolek & Keene, 2001). The Corporal Punishment subscale assesses beliefs about the value of corporal punishment. Conners, Whiteside-Mansell, Deere, Ledet, and Edwards (2006) found strong support for the psychometric properties of this subscale (α = .79). Mothers indicated how much they agreed (0 = strongly agree, 4 = strongly disagree) with 11 statements that reflect a strong belief in the use and value of corporal punishment (e.g., “Spanking teaches children right from wrong”). Higher scores indicate parenting attitudes that do not endorse the use of corporal punishment.

Maternal nonhostility. We used the Nonhostility subscale from the Emotional Availability (EA; Biringen, Robinson, & Emde, 1998) scales to assess the presence of harsh maternal affect/behavior toward her child in 5-min observations of mother–child interaction in a developmentally challenging teaching task at home. Nonhostility measured the degree to which mothers’ behaviors were free of demeaning comments, impatience, anger, frightening, harsh, or threatening behavior. Scores ranged from 1 (“markedly and overtly hostile”) to 5 (“nonhostile”). Interrater reliability for the team of trained coders was measured by intraclass correlations ranging from .83 to .90 (M = 0.86) indicating reliability from good to excellent.
**Child behavior regulation.** The 44-item Brief Infant–Toddler Social and Emotional Assessment (BITSEA; Briggs-Gowan & Carter, 2006) was used to assess social–emotional and behavioral problems or delays at T3. This nationally standardized questionnaire assesses social–emotional problems (31 items) and competencies (11 items) in young children (1-3 years), including internalizing, externalizing, and regulatory domains. Problem-related items assess behaviors that are both typical of development (e.g., aggression, sadness, or fear) and those that are not developmentally appropriate (e.g., self-injurious behaviors). Mothers indicated how true statements were for their child using a 3-point Likert-type scale (0 = not true/rarely, 1 = somewhat true/sometimes, 2 = very true/often). Higher problem scores indicate greater problems; lower competence scores indicate a possible deficit/delay in competence. Dichotomous cut scores were created based on age-band-by-sex norm groups to indicate whether a child’s behavior is in the range of possible problems (25th percentile) or deficits/delays (15th percentile).

**Results**

**Preliminary Analyses**

Study sample descriptives are presented in Table 1. Bivariate correlations were run to determine the preliminary nature of the relations between the IPV variables (main predictors) and BITSEA problem summary scores (outcome variable). Results are presented in Table 2.

**Research Question 1:** Does IPV (T2) predict child problem behaviors at T3?

To investigate the relation between IPV at T2 and child problem behaviors at T3, multiple regression analyses were run, controlling for child sex and age, maternal maltreatment history, and community clusters. Analyses explored diverse types of IPV, including minor and severe physical assault, minor and severe injury, and minor and severe psychological aggression, separately for mother-perpetrated and partner-perpetrated IPV.

When taking the control variables into account, both mother-perpetrated minor physical assault ($n = 275$) and partner-perpetrated minor physical assault ($n = 276$) were significantly associated with higher problem summary scores. Mother-perpetrated severe injury ($n = 277$) and mother- and partner-perpetrated severe psychological aggression ($n = 277$) also were positively related to BITSEA problem summary scores, such that the presence of IPV...
Table 2. Bivariate Correlations Between IPV Variables and BITSEA Summary Scores.

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<th>5</th>
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<tbody>
<tr>
<td>1. Psychological Aggression (mother perpetrated)</td>
<td>—</td>
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<td></td>
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<tr>
<td>2. Physical Assault (mother perpetrated)</td>
<td>.448**</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3. Injury (mother perpetrated)</td>
<td>.295**</td>
<td>.635**</td>
<td>—</td>
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<td></td>
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<tr>
<td>4. Psychological Aggression (partner perpetrated)</td>
<td>.790**</td>
<td>.377**</td>
<td>.257**</td>
<td>—</td>
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<tr>
<td>5. Physical Assault (partner perpetrated)</td>
<td>.378**</td>
<td>.679**</td>
<td>.446**</td>
<td>.512**</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>6. Injury (partner perpetrated)</td>
<td>.311**</td>
<td>.455**</td>
<td>.591**</td>
<td>.430**</td>
<td>.707**</td>
<td>—</td>
</tr>
<tr>
<td>7. BITSEA problem summary scores</td>
<td>.140**</td>
<td>.126*</td>
<td>.132*</td>
<td>.118*</td>
<td>.059</td>
<td>.094</td>
</tr>
</tbody>
</table>

Note. IPV = intimate partner violence; BITSEA = Brief Infant–Toddler Social and Emotional Assessment. *p < .05. **p < .01.

was associated with higher child problem behaviors. Table 3 presents the final models of these analyses.

**Research Question 2:** Does maternal depression (T2) moderate the relation between IPV (T2) and BITSEA problem summary scores (T3)?

Multiple regression analyses were run, controlling for child sex and age, maternal maltreatment history, and community clusters (n = 273-275). Types of IPV (physical assault, injury, psychological aggression), severity (minor, severe), and perpetrator (mother, partner) were analyzed separately. The analyses revealed no significant interactions (ps > .05). Maternal depression did not moderate the relation between IPV and BITSEA problem summary scores.

**Research Question 3:** Do mothers’ attitudes about the use of corporal punishment (T3) moderate the relation between IPV (T2) and BITSEA problem summary scores (T3)?

Multiple regression analyses were run, controlling for child sex and age, maternal maltreatment history, and community clusters (n = 251-253). Types of IPV (physical assault, injury, psychological aggression), severity (minor, severe), and perpetrator (mother, partner) were analyzed separately. No significant interactions (ps > .05) were revealed. Attitudes about the use of corporal punishment did not moderate the relation between IPV and BITSEA problem summary scores.

**Research Question 4:** Does maternal nonhostility (T3) moderate the relation between IPV (T2) and BITSEA problem summary scores (T3)?
Table 3. Parameter Estimates (SEs), Approximate p Values, and Goodness-of-Fit Tests for a Nested Taxonomy of Final Regression Models That Describe the Relation Between IPV Variables and BITSEA Problem Summary Scores (n = 275-277).

<table>
<thead>
<tr>
<th></th>
<th>β (SE)</th>
<th>β (SE)</th>
<th>β (SE)</th>
<th>β (SE)</th>
<th>β (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>12.90 (2.01)</td>
<td>12.87 (2.03)</td>
<td>13.40 (2.03)</td>
<td>12.54 (2.04)</td>
<td>12.98 (2.03)</td>
</tr>
<tr>
<td>Child sex</td>
<td>−0.105 (0.785)</td>
<td>0.042 (0.795)</td>
<td>−0.149 (0.793)</td>
<td>−0.041 (0.788)</td>
<td>−0.068 (0.793)</td>
</tr>
<tr>
<td>Child age</td>
<td>−0.100 (0.081)</td>
<td>−0.089 (0.082)</td>
<td>−0.088 (0.082)</td>
<td>−0.082 (0.081)</td>
<td>−0.088 (0.082)</td>
</tr>
<tr>
<td>Maternal maltreatment history</td>
<td>1.55 (0.816)</td>
<td>1.64 (0.823)*</td>
<td>1.69 (0.827)*</td>
<td>1.49 (0.816)</td>
<td>1.44 (0.822)</td>
</tr>
<tr>
<td>Low income/minority-majority ethnicity versus moderate income/homogeneous European American</td>
<td>1.67 (1.01)</td>
<td>1.51 (1.02)</td>
<td>1.39 (1.02)</td>
<td>1.74 (1.02)</td>
<td>1.54 (1.02)</td>
</tr>
<tr>
<td>Low-moderate income/ethnically diverse versus moderate income/homogeneous European American</td>
<td>0.313 (0.938)</td>
<td>0.325 (0.940)</td>
<td>0.570 (0.938)</td>
<td>0.527 (0.930)</td>
<td>0.623 (0.935)</td>
</tr>
<tr>
<td>IPV (minor physical assault; mother perpetrated)</td>
<td>3.02 (0.842)***</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>IPV (minor physical assault; partner perpetrated)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>IPV (severe injury; mother perpetrated)</td>
<td>—</td>
<td>—</td>
<td>8.00 (3.33)*</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>IPV (severe psychological aggression; mother perpetrated)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>2.80 (0.858)**</td>
<td>—</td>
</tr>
<tr>
<td>IPV (severe psychological aggression; partner perpetrated)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>2.49 (0.923)**</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.072</td>
<td>.062</td>
<td>.047</td>
<td>.063</td>
<td>.052</td>
</tr>
<tr>
<td>df (residual)</td>
<td>268</td>
<td>269</td>
<td>270</td>
<td>270</td>
<td>270</td>
</tr>
<tr>
<td>$\Delta R^2$</td>
<td>.045***</td>
<td>.035**</td>
<td>.020*</td>
<td>.037**</td>
<td>.025**</td>
</tr>
<tr>
<td>df ($\Delta R^2$)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Note. IPV = intimate partner violence; BITSEA = Brief Infant–Toddler Social and Emotional Assessment.

*aCompared with a model with control variables only.

*p < .05. **p < .01. ***p < .001.
Data were analyzed with multiple regression, controlling for child sex and age, maternal maltreatment history, and community clusters (n = 168-169). Types of IPV (physical assault, injury, psychological aggression), severity (minor, severe), and perpetrator (mother, partner) were analyzed separately. The analyses revealed no significant interactions (ps > .05). Maternal non-hostility did not moderate the relation between IPV and BITSEA problem summary scores.

**Research Question 5:** Does child maltreatment (T3) moderate the relation between IPV (T2) and BITSEA problem summary scores (T3)?

Multiple regression analyses were run, controlling for child sex and age, maternal maltreatment history, and community clusters. Analyses explored different types of child maltreatment, including psychological aggression, neglect, ordinary corporal punishment, severe corporal punishment, physical abuse, and physical violence; and types of IPV (physical assault, injury, psychological aggression), severity (minor, severe), and perpetrator (mother, partner) separately. Results indicated that child maltreatment in the form of ordinary corporal punishment moderated relations between BITSEA problem summary scores and both mother-perpetrated (β = 5.23, p = .005) and partner-perpetrated (β = 6.04, p = .003) severe psychological aggression (n = 254). For children who did not experience maltreatment (ordinary corporal punishment), BITSEA problem summary scores did not differ in the presence or absence of IPV (mother- and partner-perpetrated severe psychological aggression). However, for children who experienced maltreatment in the form of ordinary corporal punishment, BITSEA problem summary scores were higher when IPV was present. Results are presented in Figures 1 and 2.

Results indicated that physical violence moderated relations between BITSEA problem summary scores and both mother-perpetrated (β = 4.82, p = .012) and partner-perpetrated (β = 5.75, p = .006) severe psychological aggression (n = 248). Given that 50% of physical violence cases were comprised of participants who had solely used ordinary corporal punishment, it is likely that this effect is driven by the presence of ordinary corporal punishment. Similar to the results found with ordinary corporal punishment, for children who did not experience physical violence, BITSEA problem summary scores did not differ in the presence or absence of IPV (mother- and partner-perpetrated severe psychological aggression). However, among children who experienced physical violence, BITSEA problem summary scores were higher when IPV was present.
Figure 1. Interaction plot of BITSEA problem summary scores by IPV (severe psychological aggression; mother perpetrated) across mothers’ use of severe corporal punishment in child rearing.

Note. BITSEA = Brief Infant–Toddler Social and Emotional Assessment; IPV = intimate partner violence; CTS-PC = Conflict Tactics Scale–Parent/Child.

Figure 2. Interaction plot of BITSEA problem summary scores by IPV (severe psychological aggression; partner perpetrated) across mothers’ use of severe corporal punishment in child rearing.

Note. BITSEA = Brief Infant–Toddler Social and Emotional Assessment; IPV = intimate partner violence; CTS-PC = Conflict Tactics Scale–Parent/Child.
Discussion

Research on the impact of IPV on young children’s behavior regulation is critical, as very young children are disproportionately likely to be IPV exposed. This is also a time during which the developmental plasticity of the brain and stress regulatory systems convey both heightened vulnerability to environmental stressors and maximum opportunity for beneficial effects of preventive interventions. In this study, we examined implications of IPV exposure during the first 12 months of life. Our results provided confirmation of the adverse impact of early IPV on toddlers’ behavior regulation.

Mothers of the infants in our study were both the recipients and perpetrators of IPV; IPV was present in 87% of families during the past year, taking various forms (physical assault, injury, and psychological aggression). Psychological aggression was the most frequent form of IPV, reported by approximately 80% of mothers. Both psychological and physical IPV (minor and severe) were associated with compromised toddler development. Why would *minor* physical assault affect children? It could be that greater frequency of occurrence of minor physical assault (e.g., pushing, shoving, slapping) presents a burden on daily living for parents and their children, requiring frequent stress regulation and coping behaviors that challenge infant and toddler resources. Severe injury (requiring medical attention) and severe psychological aggression (destroying property, threatening harm) occurred less frequently (10% of cases) but with potentially serious implications.

According to the emotional security hypothesis, young children are highly affected by IPV when mothers, presumably the primary caregivers, are preoccupied with violent intimate relationships and are less emotionally available and reliable attachment figures (Davies & Cummings, 1994). Young children have few resources outside the family to draw upon for care and nurturance, heightening their vulnerability to parental stress. Toxic stress (National Scientific Council on the Developing Child, 2005/2014) may aptly describe these circumstances when attachment figures, preoccupied and traumatized themselves, are unable to provide the support and protection that allows a child to develop positive adaptive responses to stress. One potential pathway linking violence exposure to children’s behavior problems is executive functioning (EF). For example, Towe-Goodman, Stifter, Coccia, and Cox (2011) found that interparental violence increased 3-year-olds’ externalizing behavior problems by undermining the development of attentional skills, one component of EF. Multiple mechanisms are likely, and future investigation of these pathways has the potential to inform the development of resilience-promoting interventions.
IPV Predicts Behavior Problems: Moderating Effects

Although associations between IPV and behavior problems, even among very young children, were expected, we also explored additional questions concerning the conditions under which these associations may/may not be situated. Child maltreatment in the form of physical violence (primarily corporal punishment behaviors) moderated effects of severe psychological aggression; only children who experienced both IPV and maltreatment in the form of corporal punishment had higher behavior problems. Interestingly, 60% of mothers in our sample endorsed having used physical violence with their young children, who were on average less than 24 months of age during the reporting period.

One may ask why attitudes about corporal punishment did not show moderation effects when child maltreatment behaviors in the form of corporal punishment did. Attitudes and behaviors show only minimal to moderate convergence (Holden & Buck, 2002) and are particularly low during the infant and toddler years. In part, it may be that these instruments are measuring slightly different constructs. The assessment of attitudes about corporal punishment focuses on spanking, and the measure assessing use of physically violent behaviors includes other abusive behaviors, such as choking, shaking, and burning. Moreover, many parents may believe that it is inappropriate to use corporal punishment with infants and toddlers, even while they may do so on occasion. One “take-away” from the present study is that IPV in the context of harsh parenting fosters behavior dysregulation in young toddlers. Approximately 25% of the sample had behavior problem scores that were in the clinical range, indicating the need for clinical intervention, even at such an early age.

Why did maternal depression, or hostile maternal interactive behavior, not operate as potentiating factors in the same way? Maternal depression did exert a main effect on behavior problems but did not add to the impact of IPV. It may be that multiple risks (e.g., poverty, residential instability) in the lives of many of these families already place children at risk for behavior problems, such that maternal depression does not confer additional risk. We assessed maternal depression only at one time point, and chronic depression that occurs over a longer time period may indeed increase risk. Furthermore, the limitations of our short assessment of mother–child interaction may be operating here; there was a restricted range of hostile behavior demonstrated during our short home-based observations.

Our study extends the literature on young children’s responses to IPV in several ways. First, we focused on early exposure to IPV during infancy and toddlerhood, an understudied period. There are additional sample
characteristics that punctuate the importance of this research. Our relatively large sample represents a population (young, unmarried parents) at risk for IPV. We also included nonresidential couples, a relationship pattern that is especially common among low-income young parents where less than half of births are to cohabiting couples (Child Trends Databank, 2015). Research investigating these high-risk parents (especially fathers) is limited (e.g., Gustafsson & Cox, 2012).

Moreover, our study is unique in assessing maternal and partner perpetration of IPV. Traditionally, the literature has considered the latter but has not focused on the implications of maternal perpetration for young children. We found that mothers were as likely to perpetrate IPV as they were to receive it. Furthermore, we included multiple types of IPV, both physical and psychological, as well as the severity of IPV (minor and severe), whereas some studies have examined only physical violence (e.g., Gustafsson & Cox, 2012) and have not considered varying severity. In our sample, minor (as opposed to serious) forms of IPV were most likely to be reported by mothers. And although the focus of our study was not on the severity of IPV, there was the suggestion of a pattern of more minor perpetration by mothers as opposed to by their partners (32% endorsed perpetration of physical assault compared with 19% perpetration by partner; 1% of mothers endorsed perpetration of severe injury compared with 4% partner perpetration of severe injury).

Limitations

As with all investigations, there are limitations of this study. Our measures of IPV and children’s behavior regulation were derived from maternal report. We controlled for several things that might influence reports of IPV and behavior problems, including maternal childhood history of maltreatment, child age and sex, and community context. Studies using alternative methods do report coherence in mothers’ and their partners’ reports of IPV and in the relation between maternal reports of IPV and observations of parent–child interaction (Gustafsson & Cox, 2012), though most research is maternal report of both IPV and children’s functioning (Harding et al., 2013).

Although we refer to IPV as self- or partner perpetrated, the CTS2S that we used to assess IPV does not assess the context of the IPV behaviors. The distinction of self- or partner perpetrated may present an artificial dichotomy that fails to recognize contextual circumstances and motivation, for example, “self-perpetrated” IPV behaviors that are perceived to be in self-defense or preventive of greater violence.

Another concern is the extent of children’s direct exposure to the violence. Howell (2011) concluded that direct and indirect exposure to IPV were
equally linked to behavior problems. Graham-Bermann, Lynch, Banyard, DeVoe, and Halabu (2007) reported that the vast majority (80%-90%) of children are likely to be direct witnesses to violence involving their mothers. This may be the case in particular when children are very young (Fantuzzo & Fusco, 2007). IPV during pregnancy may confer particular risk to the development of stress regulatory systems developing in utero. Unfortunately, our data do not address the implications of IPV specifically during pregnancy; this is an important area for future research. Prenatal exposure to IPV may have health implications, including preterm birth that is higher among adolescent mothers and mothers at socioeconomic risk (da Silva et al., 2003).

Conclusion

Our study highlights the prevalence of IPV and its diverse characteristics (e.g., type, severity, perpetrator) in an understudied sample of at-risk mothers and their infants. When the home context is unable to support the salient tasks of development (establishing effective emotional and behavioral regulation), and indeed compromises children’s ability to successfully navigate them by presenting an environment of inadequate parental support, fear, and stress, young children may develop maladaptive regulatory patterns. As Raver, Blair, and Garrett-Peters (2014) noted, experiences of IPV may shape regulatory systems in a way that promotes short-term adaptation at a cost to long-term flexibility. Early exposure to IPV that is chronic or intense may canalize stress regulatory systems to be either hypo- or hypervigilant to negative emotional stimuli (Raver et al., 2014). Furthermore, the presence of additional risk factors (e.g., child maltreatment) may amplify the effects of IPV exposure on developmental outcomes. Our results provided evidence that even ordinary corporal punishment (as opposed to only serious maltreatment), when experienced by infants, can exacerbate the effects of IPV on toddlers’ behavioral regulation. Given this exposure at a key developmental period, it may be difficult to change the trajectory of these physiological response systems without intensive and costly intervention.

Our results emphasize the need for early preventive efforts in supporting parents’ understanding of the impact of IPV on their children, assisting parents in developing strategies for shielding children from the negative effects of IPV, cultivating healthier partner relationships, and perhaps in providing support to separate from abusive partners. Given that our mothers are young, and their relationships are often fluid and volatile, this preventive effort is particularly critical in this at-risk population. The promotion of healthy relationship skills and less volatile conflict resolution techniques within the family system may reduce the risks for children associated with IPV exposure.
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