Published in final edited form as:

J Marriage Fam. 2017 June ; 79(3): 865–878. doi:10.1111/jomf.12388.

Intimate Partner Violence and Children's Attachment Representations during Middle Childhood

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Abstract

Despite long-standing hypotheses that intimate partner violence (IPV) may undermine children's ability to form secure attachment representations, few studies have empirically investigated this association. Particularly lacking is research that examines IPV and attachment during middle childhood, a time when the way that children understand, represent, and process the behavior of others becomes particularly important. Using data from a sample of African American children living in rural, low-income communities ($n = 98$), the current study sought to address this gap by examining the association between physical IPV occurring early in children's lives and their attachment security during the first grade. Results indicate that, even after controlling for child- and family-level covariates, physical IPV was associated with a greater likelihood of being rated insecurely attached. This effect was above and beyond the influence of maternal parenting behaviors, demonstrating a unique effect of physical IPV on children's attachment representations during middle childhood.

Keywords

Attachment; Domestic Violence; Intimate Partner Violence; Manchester Child Attachment Story Task; Middle Childhood; Parenting

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Introduction

A large body of literature demonstrates that the quality of children's attachment to their primary caregivers can have a lasting impact on their development. Findings from several meta-analytic reviews confirm what dozens of individual studies have found: children who are insecurely attached have more difficulty with their peer relationships (Schneider, Atkinson, & Tardif, 2001) and are at heightened risk for developing internalizing (Groh et al., 2012) and externalizing (Fearon et al., 2010) symptomatology. Given the clear importance of children's attachment security for a range of subsequent competencies, it is important to investigate contextual factors that may undermine children's ability to form secure representations of their primary caregivers. Past theoretical and empirical work suggests that intimate partner violence (IPV) may be one such factor. The term IPV can refer to many types of coercive and violent behaviors perpetrated between romantic partners (e.g., physical, sexual, psychological, economic violence); the current study focused on physical IPV (physical violence perpetrated between romantic partners) because it is relatively common in families with young children (Fantuzzo, Boruch, Beriama, Atkins, & Marcus, 1997; Gustafsson, Cox, & the Family Life Project Key Investigators, 2016; McDonald et al., 2006) and thus may have particular relevance for populations like the one studied here.

According to attachment theory (Bowlby, 1969/1982; 1988), children's attachment security is the result of interactions with their early caregivers. During every day interactions, children form expectations of the reliability and accessibility of their caregivers, as well as the safety and security that these attachment figures provide. These attachment representations, or *internal working models* (IWMs), serve as guides for the child's behaviors in relationships with others, and it is in part through IWMs that children's early attachment experiences are posited to impact their long-term development. Caregiver behaviors during direct parent-child interactions are the most obvious means through which parents influence children's IWMs, however there are other ways that parental behaviors may impact children's attachment representations; physically violent exchanges between parents can also influence the extent to which children create representations of their primary caregiver as a reliable source of protection and comfort.

IPV is posited to impact children's attachment security through a number of means. During physically violent exchanges, parents are often not available to comfort a bystanding child; over time, this inability to respond to the child's fear may compromise his or her ability to create representations of their caregiver as someone who consistently responds to their distress and who can be relied upon when they are in need of comfort. Insecure representations may also stem from the child's fear of the perpetrator or perpetrators of the IPV. Witnessing or overhearing physically violent interactions between parents is frightening and fear-inducing for children, as it threatens the physical safety of both the child and his or her caregivers. As a result of witnessed IPV – or being exposed to the aftermath of violent exchanges (e.g., physical signs of IPV victimization) – children may avoid the perpetrator(s) or be reluctant to trust them, even if the perpetrator does not direct similar aggression toward the child. Together, these theoretical mechanisms can account for an association between IPV that is perpetrated by either parent and the quality of the child's attachment to his or her

primary caregiver, as well as the association between IPV that is not directly witnessed by the child and his or her attachment representations.

Building on Previous Research Linking IPV and Attachment Representations

Though very limited in number, previous studies provide empirical support for the proposed association between physical IPV and children's attachment security. For example, Zeanah et al. (1999), using a sample of 72 low-income mother-infant dyads, demonstrated that physical IPV occurring early in the child's life was associated with greater attachment disorganization at 15 months of age. Similarly, Levendosky et al. (2011), looking within a sample of 150 mother-child dyads who had all experienced some IPV, found that decreasing levels of physical IPV were associated with a greater likelihood of change from insecurity to security between 1 and 4 years of age. Although these studies provide important insight into the consequences of early physical IPV exposure, several questions remain. First, it is not clear whether these findings extend to children's attachment representations during middle childhood, a time when the way that the child understands, represents, and processes the emotion and behavior of others becomes particularly important (Kerns & Richardson, 2005). As children enter formal schooling, they spend increasing amounts of time interacting with novel peers and adults (Entwisle & Alexander, 1999), interactions that are informed by their IWMs. Children who hold insecure attachment representations - where they believe that others cannot be trusted and are reluctant to let others get close to them - have a more difficult time interacting with new individuals and creating relationships outside of the family (Contreras et al., 2000; Schneider, Atkinson, & Tardif, 2001), difficulties that can have consequences for their emotional and behavioral functioning in adolescence (Kerns & Richardson, 2005; Lecompte & Moss, 2014; Nickerson & Nagle, 2005). For many children, middle childhood is the first time that they regularly apply their IWMs outside of the family context, making this a time when their strategies for assuagement (which likely served them well in the home context, but may not be adaptive in school or social settings) become newly salient. For these reasons, investigating whether physical IPV is associated with children's attachment representations during this developmental period is an important extension of this earlier work.

Second, although the above referenced studies have established an association between physical IPV and children's attachment security, we are unaware of a study that has examined whether this association is independent of maternal parenting behaviors. Given that physical IPV has been associated with less sensitive and more harsh and controlling parenting behaviors (Gustafsson, Cox, Blair, & the Family Life Project Key Investigators, 2012; Levendosky, Leahy, Bogat, Davidson, & von Eye, 2006), and that these same dimensions of parenting are associated with attachment security (Braungart-Rieker, Garwood, Powers, & Wang, 2001; Cox, Owen, Henderson, & Margand, 1992), determining whether physical IPV is associated with children's attachment representations independent of maternal parenting behaviors has important implications for therapeutic intervention. That is, if physical IPV is directly and independently associated with children's attachment security, this may suggest that children exposed to IPV may benefit not only from

interventions that target maternal parenting behaviors, but also from those that address the trauma and post-traumatic sequelae of the IPV itself.

Last, it is not clear if results from previous studies extend to children living in more diverse settings, including African American children living in rural, low-income communities, an understudied population with regard to both IPV and attachment. Using data from a sample of African American children living in communities characterized by rural poverty, the current study sought to address each of these remaining questions by testing the following research questions: (1) *Is IPV occurring early in the child's life related to his or her attachment security during the transition to school?* and (2) *Is this effect observed above and beyond the influence of maternal parenting behaviors?*

The sample and data utilized in the current study offered a unique opportunity to test these research questions. Most previous studies examining contextual influences on attachment security have utilized data from middle-class, White children living in urban or suburban neighborhoods; the current sample of African American children living in rural, low-income communities is unusual in this literature and has the potential to give unique insight into these associations. Further, past research has shown that individuals living in low-income (Capaldi, Knoble, Shortt, & Kim, 2012; Cunradi, Caetano, & Schafer, 2002; Cunradi, Caetano, Clark, & Schafer, 2000) and rural areas (Gustafsson et al., 2016; Peek-Asa et al., 2011; Logan, Walker, Cole, Ratliff, & Leukefeld, 2003) may be at heightened risk for IPV, yet few studies have examined these associations using samples of this nature. The timing and type of measurement used in the current study is also well-suited to test these research questions. For example, IPV has been shown to be more prevalent during the early years of a child's life (Fantuzzo, Boruch, Beriama, Atkins, & Marcus, 1997; Gustafsson et al., 2016), yet longitudinal research examining the sequelae of early IPV exposure remains uncommon. Maternal caregiving during early childhood has been shown to be particularly important for children's development (Maccoby, 2000; Sroufe, 1997); the current study's consideration of several observational assessments of maternal parenting behaviors across this developmental time period, therefore, is a strength of the current approach. Finally, the current study's consideration of child attachment during middle childhood is also a strength, as the literature examining contextual influences on attachment security during this developmental period remains underdeveloped.

Past research has identified a number of correlates of IPV, maternal parenting behaviors, and children's attachment representations that may be important to consider when testing these research questions. For example, family income (Capaldi, Knoble, Shortt, & Kim, 2012; Cunradi, Caetano, & Schafer, 2002) and marital status (Brownridge & Halli, 2002; Capaldi, Knoble, Shortt, & Kim, 2012) have each been associated with physical IPV risk. Additionally, past research has documented sex differences in the extent to which children are influenced by parenting behaviors (Bezirgianian & Cohen, 1992; Egeland & Farber, 1984). Research investigating the co-occurrence of IPV and child maltreatment (Knickerbocker, Heyman, Slep, Jouriles, & McDonald, 2007) suggests that child-directed physical aggression should also be considered as a covariate. The current study incorporated each of these variables (i.e., the family's income-to-needs ratio, the couple's marital status, the child's sex, and child-directed physical aggression) as covariates in all analyses.

Methods

Participants

The current sample of families was drawn from The Family Life Project (FLP), a large longitudinal study that employed complex sampling procedures to recruit a representative sample of 1,292 families at the time that mothers gave birth in three nonurban counties in eastern North Carolina and three target counties in central Pennsylvania. Mothers who lived in the target counties but gave birth outside these counties were identified by county birth records and contacted and recruited approximately one month after giving birth. To participate in this study, mothers had to report that English was the primary language spoken in the home. Further details on the FLP sampling plan and recruitment procedures are available in Vernon-Feagans, Cox, & the Family Life Project Key Investigators (2013). During the fall of the year in which the target child was enrolled in first grade, a random sample of 276 African American families from the North Carolina site were selected to participate in an additional data collection visit during which the Manchester Child Attachment Story Task (MCAST; described below) and maternal interviews were conducted. Children in this subsample were on average 6.70 years old ($SD = 0.30$) and 52.9% were female. The average household income when the child was 58 months old was \$31,846.54 ($SD = \$26,399.85$). The current study utilized data from families in which the child's mother had a romantic partner at the 6 month assessment ($n = 98$). Mothers in this subsample, on average, reported a significantly higher household income ($m = \$37,094.65$, $SD = \$24,198.97$) but did not differ from the larger $n = 276$ subsample on any of the other aforementioned demographic variables. The majority of the mothers were married to and residing with their child's biological father ($n = 60$; 61.22%). Of the unmarried couples ($n = 38$), 39.47% ($n = 15$) of the male partners resided in the home with the mother and the child.

Procedures

Data used in these analyses came from a series of home visits, completed when the child was 6, 15, 24, 36, and 58 months old. At each assessment, two research assistants visited all FLP families in their homes, where they administered interviews and questionnaires to household members, conducted child assessments, and videotaped parent-child interactions for later coding. In the fall of the year that the child began first grade, a random sample of families were again seen in their home, where research assistants administered interviews and questionnaires and conducted a number of child assessments, including the MCAST. All procedures were approved by the institutional review board at the University of North Carolina at Chapel Hill.

Measures

Demographic covariates—At each visit, mothers reported information on a variety of household demographic variables, including the total household income from all possible sources, the number of individuals living in the home, the sex (0 = *Female*, 1 = *Male*) of the target child, and the mother's marital status (0 = *Unmarried*, 1 = *Married*). Income-to-needs ratios were calculated at each assessment timepoint by dividing the total household income from all possible sources by the federally determined poverty threshold for the number of people living in the household for that year. Income-to-needs ratios above 1.0 indicate that a

family is able to provide for basic needs, whereas values below 1.0 indicate that they are not. Because income-to-needs ratios showed stability over time (r ranged from .48 – .74, $p < .01$), the family's income-to-needs ratio from the 58 month assessment was used as a covariate in the current study.

Child-directed physical aggression—Child-directed physical aggression was measured using a modified version of the parent-child Conflict Tactics Scale (CTSPC; Straus, 1979). When their child was 36 months old, mothers completed this 20 item questionnaire, reporting how often in the past year they manifested the particular behavior in response to a conflict with their child (where 0 = *Never* and 6 = *Almost every day*); they were also asked to rate how frequently in the past year their partner manifested the particular behavior. The 4-item physical aggression subscale ($\alpha = .63$ and $\alpha = .54$ for our subsample for mother-perpetrated and father-perpetrated, respectively) was used in the current study. An example item reads “[how often have you] hit or tried to hit the child with something?”

Physical intimate partner violence—Physical IPV was assessed using the Conflict Tactics Scale – Couple Form R (CTS-R; Straus & Gelles, 1990), a 19 item self-report measure completed by the mothers when their child was 6, 15, and 24 months old. Each of these items lists a possible response to marital conflict; respondents were asked to rate on a seven point likert-type scale (where 0 = *Never* and 6 = *More than 20 times*) how often in the past 12 months they engaged in specific behavior in response to an argument with their partner. They were also asked to rate how often in the past 12 months their partner engaged in each behavior. The 9 item physical violence subscale of this measure (the mean of these 9 items; e.g., “kicked, bit, or hit him/her/you with a fist”) was used in this study. See Gustafsson, Cox, & the Family Life Project Key Investigators, 2016 for additional information about the prevalence and nature of IPV occurring in the FLP. In accordance with previously published work (e.g., Jouriles et al., 2008; Straus & Gelles, 1990), and in an effort to more comprehensively capture the violent climate of the mother's relationship at each timepoint, the mother's report of her own physical IPV and her report of her partner's physical IPV were summed, to create a continuous total score which represents the total amount of physical IPV experienced in the household (α ranged from .86 to .90). The continuous total physical IPV scores from the 6, 15, and 24 month timepoints were used as indicators of the latent variable physical IPV.

Observed maternal parenting behaviors—Maternal parenting behaviors were assessed during semi-structured parent-child interactions. When children were 15 months old, mothers and children were presented with a standard set of toys and asked to complete a free play activity. Mothers were instructed to interact with their children as they typically would if given some free time during the day. When the children were 24- and 36-months old, the same mother-child dyads completed a puzzle play activity, in which they were presented with three developmentally appropriate puzzles of increasing difficulty. Parents were told that the puzzles were for the child to complete but that they could provide any assistance they thought the child needed. All interactions lasted 10 minutes and were videotaped for later coding by an ethnically diverse team of coders who were blind to other information about the families. Using seven global rating scales (Cox & Crnic, 2002:

sensitivity/responsiveness, detachment/disengagement, intrusiveness, stimulation of cognitive development, positive regard, negative regard, and animation) adapted from those used by the NICHD Study of Early Child Care (NICHD Network, 1999), coders rated parenting behaviors on a 5-point scale (on which 1 = *not at all characteristic* and 5 = *very characteristic*). Informed by an exploratory factor analysis with an oblique rotation, the individual subscales were composited to obtain overall sensitive parenting (the mean of sensitivity, reverse scored detachment, stimulation of cognitive development, positive regard, and animation) and harsh-intrusive parenting (the mean of intrusiveness and negative regard) scores. Interrater reliabilities, assessed using intraclass correlations ranged from .89 to .94 for sensitive parenting and from .77 to .83 for harsh-intrusive parenting for the current subsamples at the various assessment timepoints. At each timepoint, coders underwent training until acceptable reliability (intraclass correlation >.80) was achieved and maintained for each coder on every scale. Once acceptable reliability was established, coders began coding in pairs while continuing to code at least 20% of their weekly cases with a criterion coder. Reliability was based on the independent scores of coders. Each coding pair met biweekly to reconcile scoring discrepancies; the final consensus scores were used in all analyses.

Attachment security—Children's attachment representations were assessed using the MCAST (Green, Stanley, Smith, & Goldwyn, 2000) during the fall of the year that they began the first grade. The MCAST was administered in a separate room with only the child and research assistant present, so that parents could not interfere with the procedure and children's responses would not be influenced by the presence of their mother or other family members. The procedure was videotaped and coded at a later time. Construct validity of the MCAST is relatively well-established in both normative and clinical samples. Attachment category distributions in typically developing samples tend to mirror those found when using the Strange Situation Procedure (Green et al., 2000). Other psychometric properties of the scoring procedure are also strong, including internal consistency of the coding structure, the contributions of individual coding scale scores to overall classifications, factor structure of the coding subscales, and stability of attachment classifications across time (Green et al., 2000; Barone, del Giudice, Fossati, Manaresi, Perinetti, Colle, & Veglia, 2009). Past studies have found convergent validity with the Adult Attachment Interview (Goldwyn, Stanley, Smith, & Green, 2000; Steele, Hodges, Kaniuk, Hillman, & Henderson, 2003) and several studies have reported significant associations between MCAST categories and children's socioemotional and behavioral functioning, in theoretically expected directions that are consistent with other measures of attachment (Barone & Lionetti, 2012; Colle & Del Giudice, 2011; Futh, O'Connor, Matias, Green, & Scott, 2008; Green, Stanley, & Peters, 2007). There are no associations between MCAST coding categories and ratings of children's temperament, thus providing some support for the measure's discriminant validity (Goldwyn et al., 2000). Importantly, the MCAST has successfully be used with low income and ethnically diverse samples (Brown, Gustafsson, Mills-Koonce, Cox, & the Family Life Project Key Investigators, under review; Futh et al., 2008).

The MCAST is a doll-play vignette completion task designed to assess patterns of children's representations of their attachment relationships with primary caregivers. In this task, the

child is introduced to the play materials (a doll's house with furniture and multiple dolls) and asked to pick a doll that represents him/herself and one to represent his/her primary caregiver. After the child is introduced to the task via a neutral breakfast vignette, the child is presented with four attachment-related 'distress' vignettes: 1) The child awakes at night alone with a nightmare; 2) The child is playing outside and falls over and hurts his/her knee and is in pain and bleeding; 3) The child develops acute abdominal pain; and 4) The child finds him/herself lost and alone while shopping with the caregiver in a large crowd. In each vignette the child doll is placed in a situation of specific distress with the caregiver doll close by but not proximate, thus giving the child an opportunity to represent proximity-seeking and other attachment behaviors in the story completion. To elicit these behaviors, each 'distress' vignette begins with an initiation phase during which the interviewer amplifies the intensity of the distress presented in the child doll figure as a means of elevating the child's involvement and sympathetic arousal. MCAST interviewers are trained to elicit the necessary level of affective arousal both verbally and through their own affect. In order to induce stress, interviewers introduce a sharp, sudden turn of events that quickly transitions the story to a distress narrative (e.g., "...and **SUDDENLY**, he **FALLS DOWN!!**") and heighten arousal by using their own affect to invoke the child-doll's distress (e.g., "**OWW! My TUMMY HURRRRTS! IT REALLY HURTS!!**"). Interviewers use exaggerated facial expressions, gestures, and emotional reactions to mimic the profound emotional distress of the child-doll before "handing over" the vignette for the child's completion. This serves the purpose of elevating the child's involvement and sympathetic arousal in order to mobilize the child's attachment-related thoughts and behaviors. During the next phase of the vignette, children play out a story completion both verbally and non-verbally using the available dollhouse and figures. Once the child has finished, the interviewer asks a series of structured probes aimed at clarifying the intention behind the play, the degree of assuagement experienced by the child doll, and the mental state attributions made by the child to the dolls (e.g., "What is the child-doll feeling?" "What is the mommy-doll thinking?").

MCASTs were coded by two coders who were trained to reliability by MCAST creator Dr. Jonathan Green. Coders rate a series of dimensions related to the content, coherence, and organization of the children's stories. Based on the patterns that emerge from these codes a 'primary strategy of assuagement' is identified for each vignette and subsequently an overall classification is made according to the predominant pattern across all four vignettes. These final classification categories are analogous to Strange Situation classifications: Secure (B), Avoidant (A), Ambivalent (C), and Disorganized (D) representations. See Gustafsson, Cox, & the Family Life Project Key Investigators, 2016 for additional information about the administration and scoring of this measure. Following standard MCAST scoring procedures, children's 4-category representational classifications were collapsed to form secure (B) and insecure (A, C, or D) categories. Coders overlapped on 16.4% of cases and agreed on the security/insecurity classification in 97.6% of all cases (Cohen's Kappa = .91), suggesting good inter-rater reliability. The few coding discrepancies were resolved through conferencing; the final consensus scores were used in all analyses. Twenty-four (24.49%) of the children in our subsample were classified as insecurely attached to their mother; the remaining 75.51% ($n = 74$) were classified as securely attached.

Analytic Strategy

Our research questions were tested using the *Mplus* version 7.0 software package (Muthén & Muthén, 1998–2012) using the robust weighted least squares estimator. This estimator does not make distributional assumptions and therefore can accommodate non-normally distributed variables; simulation studies have shown that it outperforms all other estimators when modeling categorical data (Muthén, du Toit, & Spisic, 1997). Model fit was examined using a number of fit indices, including the comparative fit index (CFI; Bentler, 1990), the Tucker-Lewis index (TLI; Tucker & Lewis, 1973), and the root mean squared error of approximation (RMSEA; Browne & Cudeck, 1993). CFI and TLI values above .95 and RMSEA values below .06 indicate good model fit (Hu & Bentler, 1999). Missing data were handled using full information maximum likelihood (Arbuckle, 1996).

Our two research questions were tested simultaneously using a single structural equation model. Specifically, the MCAST insecurity variable was regressed on the physical IPV latent variable, as well as on the sensitive maternal parenting behaviors and the harsh-intrusive parenting behaviors latent variables. Additionally, the MCAST insecurity variable was regressed on each of the aforementioned covariates (i.e., family income, the mother's marital status, the child's sex, and child-directed physical aggression). Non-significant paths from these control variables were removed from the final model in order to preserve model parsimony.

Results

Descriptive statistics and bivariate correlations among the current study's focal variables appear in Table 1. Correlations were largely as expected, such that physical IPV was positively associated with attachment insecurity (r ranged from .15 – .29 at the various assessment timepoints). Not all of these associations were statistically significant, but they were all in the proposed direction.

Fifty-five (56.12%) of mothers in the current subsample reported at least one incident of IPV when their child was 6, 15, or 24 months old; 53 (54.08%) mothers and 46 (46.94%) of their partners were reported to be physically violent. Just under 43% of couples endorsed at least one instance of physical IPV at the 6 month, 36.67% at the 15 month, and 38.10% at 24 month assessment. These figures are quite a bit higher than those reported by studies of physical IPV prevalence in the United States, but are consistent with estimates produced for the complete FLP sample. As is typically true of community-based samples, the plurality of physical IPV in this subsample was dual-perpetrated ($n = 44$; 80%), followed in frequency by female-perpetrated ($n = 9$; 16.36%), and male-perpetrated ($n = 2$; 3.64%). The full range of the CTS (in terms of frequency: *Never* to *More than 20 times*) was observed for each physically violent item, with the exception of “used a knife or fired a gun,” whose scores ranged from 0–3 (*Never* to *3–5 times* in the past 12 months). Most violent couples ($n = 41$; 74.55%) endorsed both minor and severe instances of IPV.

As described above, our two research questions were tested simultaneously, via a SEM in which the MCAST attachment insecurity variable was regressed on the physical IPV latent variable, as well as on the sensitive and harsh-intrusive maternal parenting behaviors latent

variables. The results of this SEM appear in Figure 1, where significant paths are indicated by a solid black line while non-significant paths are indicated by a gray dashed line. Results indicate that physical IPV occurring early in the child's life was significantly associated with increased odds of being rated as insecurely attached ($\beta = .44, p < .01$). Importantly, this effect was above and beyond the influence of the sensitive parenting behaviors and harsh-intrusive parenting behaviors latent variables, which were not significantly related to attachment insecurity when considered in a model with physical IPV ($p = .22$ and $.23$, respectively). This model fit the data well, $\chi^2(30, N = 98) = 36.78, p = .18, CFI = .94, TLI = .10, RMSEA = 0.04$, and accounted for 19.10% of the variance in children's attachment representations. When considered in a model with physical IPV and maternal parenting behaviors, none of the aforementioned covariates were significantly associated with attachment security, and thus were not retained in the final model.

Discussion

Using longitudinal data from a unique sample of African American children living in communities characterized by rural poverty, the current study is the first to our knowledge to link physical IPV with children's attachment representations during middle childhood. Utilizing data collected at multiple assessment timepoints across the first several years of the child's life, the current study found that children living in physically violent homes were at increased risk for being rated insecurely attached to their mother when they were in the first grade. Importantly, this effect was observed above and beyond the influence of a number of child- and family-level covariates (i.e., the family's income-to-needs ratio, the mother's marital status, the child's sex, and child-directed physical aggression), as well as above and beyond the influence of maternal sensitive and harsh-intrusive parenting behaviors, indicating a unique effect of physical IPV on children's attachment representations. These results suggest that living in a physically violent home – independent of the concomitant disturbances in parent-child interactions – is associated with the extent to which the child views his or her mother as a reliable, consistent source of safety and support. These findings suggest that attachment-oriented interventions developed for children who live in physically violent homes should not only target maternal parenting behaviors and the quality of mother-child dyadic interaction, but should also address the effects of the physical IPV itself. Studies demonstrating the efficacy of attachment-based interventions such as child-parent psychotherapy (Lieberman, Van Horn, & Ippen, 2005) – in which clinicians work with parent-child dyads to promote more optimal dyadic interactions while also addressing the effects of IPV by helping the dyad to construct a joint narrative of the psychological trauma – support the idea that this type of treatment is implementable and can help families in which physical IPV has occurred.

The current study adds to the field's understanding of the consequences of early physical IPV exposure in a number of ways. Although significant clinical and theoretical work suggests that traumatic experiences like IPV can undermine children's ability to form secure attachments to their caregivers, surprisingly few studies have empirically investigated whether physical IPV specifically is associated with children's attachment representations. Building upon the scant literature that demonstrates that physical IPV is associated with attachment security during the first few years of life, the current study is the first to our

knowledge to demonstrate that physical IPV occurring early in the child's life is also associated with his or her attachment security during middle childhood, a developmental period during which children's attachment representations become increasingly important. Additional strengths of this study include its use of a well-validated observational assessment of attachment in middle childhood and rich observational methods of assessing maternal parenting behaviors at multiple timepoints across early childhood.

Despite its contributions, this study also had a number of limitations. First, these findings only generalize to African American children living in rural, low-income communities similar to those studied here. Future research should examine whether these associations extend to other populations. Second, the current study only examined the child's attachment to their primary caregiver, which in this sample included exclusively biological mothers. The current study's focus on mothers stems from research that shows that, particularly early in the child's life, mothers tend to spend more time caring for their children relative to fathers (Hofferth, Stueve, Pleck, Bianchi, & Sayer, 2002; Pleck & Masciadrelli, 2004), making mother-child attachment security particularly important for the child's development. Future research, however, should explore the extent to which IPV is associated with father-child attachment security, both during middle childhood and earlier in development. A third limitation of the current study is that we were unable to properly consider the role that the identity of the perpetrator(s) of the IPV may play in moderating the association between physical IPV and children's attachment representations. In *post hoc* analyses, we did examine whether male-, female-, and dual-perpetrated physical IPV were differentially related to children's attachment security. Additionally, we examined the role that the child's relationship to the perpetrator (i.e., biological parent vs. not; residential vs. non-residential partner) may have in these associations. We found no evidence that these characteristics of the perpetrator of the physical IPV was independently or interactively related to children's attachment representations. Because physical IPV in community samples like the one studied here is most commonly mutual (Capaldi & Owen, 2001; Johnson, 2006) – and the current sample was relatively homogenous with regard to family structure and partner residential status – the current study was likely insufficiently powered to detect such effects, and thus we hesitate to make conclusions about these supplemental analyses. Fourth, the current study – like most studies of physical IPV – was limited in its ability to assess how much of the physical IPV the child directly witnessed. Although previous research suggests that most children living in physically violent homes witness at least some IPV (Sternberg, Lamb, & Dawud-Noursi, 1998), future research should investigate whether the magnitude or nature of these associations vary based on the amount of physical IPV that the child witnessed. Fifth, the current study focused on the effects of physically violent interactions, however there are many other type of domestic violence (e.g., sexual, psychological) that may also exert effects on children's attachment security at this age. The current study focused on physical IPV because it is a commonly occurring type of IPV in community-based samples (and thus studies of physical IPV may have particular relevance for populations like the one studied here), however the various forms of IPV often co-occur (e.g., Coker, Smith, McKeown, & King, 2000); future research should assess and evaluate the influence of other forms of IPV that may be occurring in these households in order to better understand the impact of IPV on child development. Sixth, although the current study

offers unique information about the effects of physical IPV on children's attachment representations, it was not adequately powered to identify the mechanisms through which physical IPV impacts children's IWMs or to examine more complex associations (e.g., bidirectional) among these variables. Future research should utilize more advanced statistical techniques to approach the associations among these variables (e.g., growth mixture modeling, cross-lagged path models), as research of this nature has the potential to yield important insights into the relations examined here. Seventh, the current study used the Conflict Tactics Scale to measure physical IPV. Though this is the most widely used self-report measure of IPV, other methods of assessing physical IPV exist (e.g., police reports); these methods may yield different IPV prevalence rates, rates of bidirectionality, and different patterns of findings than those presented here, and thus should be examined in future research. Last, the current study only measured children's attachment representations at one timepoint, and thus we are unable to make inferences about the onset of the attachment insecurity or to make claims that the attachment representations that are assessed in middle childhood are distinct from the quality of child's attachment security in infancy. Rather, we are limited to stating that the effect of early IPV exposure can be carried forward into middle childhood, negatively influencing children's attachment representations during a particularly important time in development.

Summary and Conclusions

Using data from a unique sample of African American children living in rural, low-income communities, the current study examined whether physical IPV assessed at multiple times over the first few years of the child's life was associated with his or her attachment security during middle childhood. Results indicate that physical IPV occurring early in the child's life was associated with an increased risk for being rated as insecurity attached to his or her mother during the first grade. This effect was observed above and beyond the influence of maternal sensitive and harsh-intrusive parenting behaviors, indicating a unique effect of physical IPV on children's attachment representations. These findings suggest that attachment-oriented interventions implemented with children who have been exposed to physical IPV should not only target maternal parenting behaviors but should also address the trauma of the IPV itself.

Acknowledgments

This research was supported by grants from the National Institute of Child Health and Human Development (PO1-HD-39667 and R21 HD-061649) with co-funding from the National Institute on Drug Abuse, as well as by a predoctoral fellowship provided by the National Institute of Child Health and Human Development (T32-HD07376) and a postdoctoral fellowship in behavioral medicine awarded by the Herbert H. and Ruth S. Reiner fellowship fund.

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Figure 1. Final Model Relating Intimate Partner Violence, Maternal Parenting Behaviors, and Child Attachment Security

Note: $\chi^2(30, N = 98) = 36.78, p = .18$, CFI = .94, TLI = .91, RMSEA = 0.04. CTS = Physical violence subscale of the Conflict Tactics Scale, MCAST = Manchester Child Attachment Story Task (defined as 0 = *Secure*, 1 = *Insecure*), PCX = parent-child interaction, m = month. ** $p < .01$, * $p < .05$. All presented parameter estimates are standardized. Grey dashed lines indicate paths that were estimated but were not statistically significant in the final model.

Table 1
Descriptive Statistics and Bivariate Correlations Among Study Variables (n = 98)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<i>Intimate Partner Violence</i>															
1. 6 months	--														
2. 15 months	.73**	--													
3. 24 months	.49**	.38**	--												
<i>Maternal Parenting Behaviors</i>															
4. 15m Sensitivity	-.18	-.14	-.27*	--											
5. 24m Sensitivity	-.21	-.18	-.17	.54**	--										
6. 36m Sensitivity	-.24*	-.24*	-.26*	.54**	.56*	--									
7. 15m Harsh-Intrusive	-.17	-.07	-.09	-.08	-.20	-.18	--								
8. 24m Harsh-Intrusive	.13	.13	.09	-.13	-.37**	-.11	.43**	--							
9. 36m Harsh-Intrusive	.05	-.07	.19	-.14	-.22*	-.34**	.36**	.26*	--						
10. Attachment Insecurity ^a	.23*	.29**	.15	.08	-.05	.00	.05	.15	.01	--					
11. Income-to-Needs Ratio	-.09	-.05	-.28*	.12	.21	.25*	-.02	-.05	-.16	.03	--				
12. Marital Status	-.21*	-.29**	-.06	-.01	.20	.19	-.07	.21*	-.05	-.03	.16	--			
13. Child's Sex ^b	-.07	-.12	.12	-.01	-.04	.01	-.14	.14	.23	-.05	.06	.02	--		
14. Maternal CDPA	.26**	.41**	.12	.00	.12	-.02	.07	-.03	.07	.13	-.15	-.10	.14	--	
15. Partner CDPA	.05	.03	.01	.11	.11	.12	-.05	.03	.05	-.02	-.03	.06	.15**	.84**	--
Mean	.51	.45	.63	2.55	2.74	2.73	2.39	2.57	2.43	--	1.51	--	--	.31	.08
Standard Deviation	.89	.94	1.23	.73	.82	.64	.68	.80	.74	--	.99	--	--	.74	.38
Range	0-4.11	0-4.89	0-5.44	1-4.2	1.2-4.6	1.2-4.2	1-5	1-4.5	1-4.5	--	0-5.25	--	--	0-4.5	0-3

Note:

** $p < .01$,

* $p < .05$.

^a 0 = Female, = Male.

q_0 = Secure, 1 = Insecure. CDPA = Child-directed physical aggression.

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Table 2

Table Summarizing the Timing of the Various Measures Utilized by the Current Study

Construct	Assessment Timepoint					
	6 months	15 months	24 months	36 months	58 months	1st grade
Intimate Partner Violence	X	X	X	--	--	--
Attachment Security	--	--	--	--	--	X
Maternal Sensitivity	--	X	X	X	--	--
Maternal Harsh Intrusiveness	--	X	X	X	--	--
Child-Directed Physical Aggression	--	--	--	X	--	--
Demographic Covariates	--	--	--	--	X	--