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Intimate partner violence as a mechanism underlying the intergenerational transmission of maltreatment among economically disadvantaged mothers and their adolescent daughters

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Abstract

Child maltreatment represents a pervasive societal problem. Exposure to maltreatment is predictive of maladjustment across development with enduring negative effects found in adulthood. Compelling evidence suggests that some parents with a history of child abuse and neglect are at elevated risk for the maltreatment of their own children. However, a dearth of research currently exists on mediated mechanisms that may underlie this continuity. Ecological and transactional theories of child maltreatment propose that child maltreatment is multiply determined by various risk factors that exist across different ecological systems. Intimate partner violence (IPV) often co-occurs with child maltreatment and may represent a pathway through which risk for child abuse and neglect is transmitted across generations within a family. Informed by theories on the intergenerational transmission of child maltreatment and utilizing a community-based, cross-sectional sample of 245 racially and ethnically diverse, low-income mothers and daughters, the objective of this study was to investigate IPV as a propagating process through which risk of child abuse and neglect is conferred from parent to child. We found evidence suggesting that mothers' history of maltreatment is associated with both their IPV involvement and their adolescent daughters' maltreatment victimization (with exposure to IPV as a maltreatment subtype excluded for clarity). Maternal IPV also partially accounted for the continuity of maltreatment victimization from mother to adolescent. A secondary analysis that included the adolescent's own engagement in dating violence provided compelling but preliminary evidence of the emergence of a similar pattern of relational violence, whereby adolescent girls with maltreatment histories were likewise involved in abusive intimate relationships. Future directions and clinical implications of these findings are discussed.

Keywords

maltreatment; intergenerational transmission; intimate partner violence; adolescent

Child maltreatment is a pervasive and ongoing societal problem. Based on substantiated Child Protective Services reports, approximately 676,000 (9.1 out of every thousand) children were victims of some form of maltreatment in the United States in 2016 (U.S. Department of Health and Human Services, 2018). Many instances of child maltreatment continue to go unreported; thus, these figures are an underestimation of the child maltreatment that occurs each year (Herrenkohl, Sousa, Tajuma, Herrenkohl, & Moylan, 2008). Racial and ethnic group comparisons further demonstrate that incidences of maltreatment victimization are even higher for minority groups (U.S. Department of Health and Human Services, 2018).

Maltreatment is well documented as injurious to a child's normative development across a wide range of physical, biological, socioemotional and mental health domains (Cicchetti & Toth, 2016). Children, especially younger children, may sustain physical injuries such as bruises, scars, and broken bones (Centers for Disease Control and Prevention, 2014). Additionally, biological alterations in brain anatomy and connectivity are also apparent in maltreated youths (Hart & Rubia, 2012; Jedd et al., 2015). Children with maltreatment histories are at significant risk for subsequent psychological dysfunction, such as externalizing (e.g. aggressive, disruptive and antisocial behaviors) and internalizing (anxious, depressive) behaviors (Cicchetti & Toth, 2005, 2016; Toth, Manly, & Cicchetti, 1992), in addition to substance use and suicidality (Herrenkohl et al., 2008). Prospective data in a community-based sample suggest that maltreatment victimization within the first 5 years of life also predicted interpersonal difficulties and mental health problems in adolescents relative to youth without a maltreatment history and above and beyond other confounding factors, such as poverty and family stress (Lansford et al., 2002). Moreover, Lansford and colleagues (2002) also reported that these physically maltreated youths had 2–3 times the risk for maladjustment on a single or multiple domain of functioning, relative to their non-maltreated counterparts. In severe instances, maltreatment may result in child fatality (U.S. Department of Health and Human Services, 2018).

Intergenerational Transmission of Maltreatment.

Within families, a caregiver's previous history of child maltreatment victimization is a strong predictor of subsequent child maltreatment perpetration. Although the experience of abuse or neglect victimization in childhood does not always result in the perpetration of child maltreatment during parenthood (Berlin, Appleyard, & Dodge, 2011; Ertem, Leventhal, & Dobbs, 2000; Thornberry, Knight, & Lovegrove, 2012), the empirical literature provides compelling support for the substantive risk of heightened maltreatment perpetration among parents with a history of childhood maltreatment (Berlin et al., 2011; Dixon, Browne, & Hamilton-Giachritsis, 2005; Pears & Capaldi, 2001; Thornberry & Henry, 2013; Widom, Czaja, & DuMont, 2015). Rates of the intergenerational transmission of maltreatment within the US have been estimated to be between 17–23% based on prospective community-based studies (Berlin et al., 2011; Pears & Capaldi, 2001; Thornberry & Henry, 2013), although higher rates have been reported elsewhere (Geiger et al., 2015). Dixon, Browne, & Hamilton-Giachritsis, 2005 also reported that parents with a maltreatment history were four times more likely to abuse or neglect their children than non-maltreated parents.

Ecological and transactional theories offer an important framework for understanding the intergenerational transmission of child maltreatment. These theories suggest that child maltreatment is strongly dependent on the interplay of myriad variables (Belsky, 1980,1993; Cicchetti & Rizley, 1981). That is, the interaction and transaction of ecological factors, such as characteristics of the parent, child, the family system, or larger social milieu may provide meaningful explanatory connections for the etiology of child maltreatment. Proponents of these paradigms posit that the intergenerational transmission of child abuse and neglect is likewise multiply-determined by different risk and protective factors operating at various levels of these systems (Belsky, 1980, 1993; Cicchetti & Rizley, 1981), with the cumulative effects of enduring and transient risk factors increasing the likelihood of child maltreatment occurrence within families and its continuity across generations (Dixon, et al., 2005; Dixon, Hamilton-Giachritsis, & Browne, 2005). Similarly, evidence demonstrates that the existence of multiple concomitant risk factors associated with child maltreatment increases the odds that parents with maltreatment histories may maltreat their own children by seventeen-fold, compared to parents without a maltreatment history (Dixon et al., 2005).

Consistent with this theoretical perspective, several noteworthy characteristics of the parent and of the family system may underlie the intergenerational transmission of child maltreatment. However, to date, only a paucity of mediated mechanisms have been identified. For instance, a few negative caregiver attributes, such as younger age at parenthood, the maltreated mothers' substance use, perceived social isolation, mental health concerns and aggressive response biases have been identified as propagating processes of child maltreatment continuity (Appleyard, Berlin, Rosanbalm, & Dodge, 2011; Berlin et al., 2011; Dixon, Browne, & Hamilton-Giachritsis, 2005). Although these findings are encouraging from a prevention and intervention perspective, multiple other factors operating at various levels of the ecological system likewise converge to increase risk for child maltreatment's continuity (see Sturge-Apple et al., in press, for a review) and the extent to which they contribute to or account for the persistence of maltreatment across generations of families is not well understood.

As maltreatment represents a severe relational disruption between a child and the caregiver, impairments in the child's emotion regulatory capacity and in the way in which he or she conceptualizes interpersonal relationships will inform how they interact with others (Cicchetti & Toth, 2016). In adulthood, these factors are thought to explain maltreated caregivers' tendency to attend more selectively to hostile or threat cues and their propensity to respond to interpersonal situations with aggression or violence (Dodge, Bates, & Pettit, 1990), all of which may heighten the risk for child maltreatment perpetration. Furthermore, maltreated caregivers' beliefs about and acceptance of violence as a normative and appropriate disciplinary measure are also putative risk factors that elevate the likelihood of subsequent child abuse and neglect perpetration (Belsky, 1993; Cicchetti & Lynch, 1993; Dodge et al., 1990). Similarly, these hostile behavioral patterns are likely to be evident across multiple relational contexts, including maltreated individuals' romantic relationships.

Maternal Intimate Partner Violence as a Mechanism

Child maltreatment has been shown to impair the quality of subsequent interpersonal and romantic relationships (DiLillo, Lewis, & Loreto-Colgan, 2007; Kim & Cicchetti, 2010). Not only are maltreated individuals more likely to live with violent adults (Dixon et al., 2005; Dixon, Hamilton-Giachritsis, et al., 2005) but individuals with a maltreatment history also tend to couple or cohabit with partners who may also lack adaptive interpersonal or conflict resolution skills (Ehrensaft et al., 2003; Feiring & Furman, 2000; Simons, Johnson, Beaman, & Conger, 1993), thereby increasing the likelihood of intimate partner conflict, hostility, stress and potential violence.

Intimate partner violence (IPV) is typically considered to include the engagement, or the threat of engagement, in physically, sexually, or psychologically/emotionally violent behavior by or towards a romantic partner (Capaldi, Knoble, Shortt, & Kim, 2012). Intimate partner violence victimization is pervasive among both men and women. Approximately 31.5% of women and 27.5% of men reported lifetime prevalence of physical violence victimization by an intimate partner (Breiding et al., 2015). Rates of lifetime psychological aggression by a partner were similarly high, with almost half of women (47.1%) and men (46.5%) indicating experiencing one or more acts, such as humiliation or the use of coercive control techniques. Despite the alarmingly high rates of sustained abuse reported in the survey, researchers suggest that the frequency of intimate partner violence victimization may be underestimated (Breiding et al., 2015).

IPV is also frequently mutual. That is, perpetration and victimization are highly correlated and tend to co-occur in abusive romantic relationships (Kwong, Bartholomew, Henderson, & Trinke, 2003; Malik, Sorenson, & Aneshensel, 1997; Slep & O'leary, 2005). Approximately half of all abusive adult intimate relationships are characterized by perpetration of violence by both partners (Langhinrichsen-Rohling, Selwyn, & Rohling, 2012; Linder & Collins, 2005; Whitaker, Haileyesus, Swahn, & Saltzman, 2007; Williams, Ghandour, & Kub, 2008). The occurrence of IPV is associated with short- and long-term adverse consequences for the victim, including physical injury, receipt of medical care, legal intervention, unintended pregnancies or sexually transmitted diseases, and negative mental health symptoms (Archer, 2000; Breiding et al., 2015; Capaldi, Kim, & Shortt, 2007; Ehrensaft, Moffitt, & Caspi, 2004; Vagi, Olsen, Basile, & Vivolo-Kantor, 2015).

Research also suggests that approximately 25–30% of children are indirectly or directly exposed to IPV (McDonald, Jouriles, Ramisetty-Mikler, Caetano, & Green, 2006; Smith, Ireland, Park, Elwyn, & Thornberry, 2011). Several studies have found that in instances in which IPV occurred in the home, children were present and could hear and/or see the behavior almost 80% of the time (Fantuzzo & Fusco, 2007; Knutson, Lawrence, Taber, Bank, & DeGarmo, 2009). Although such exposure to IPV can be considered a form of child maltreatment, such exposure should also be differentiated from other maltreatment subtypes in order to disentangle the relative contributions of IPV exposure from other forms of maltreatment in shaping children's outcomes. Children who are exposed to IPV may be threatened and/or intentionally or accidentally injured at some point during the conflict. Furthermore, IPV can lead to parental rejection, as violence in their romantic relationship

may compromise caregivers' capacity to be emotionally available to support and care for their children (Holden, 2003). Therefore, IPV may represent a key mechanism underlying the intergenerational transmission of maltreatment.

Although studies have investigated the co-occurrence of maltreatment and intimate partner violence, the extent to which the latter serves as a propagating process is not well understood. Dixon and colleagues (2005a, 2005b) found that having an adult in the home with "violent tendencies" may serve as a partial explanatory connection between a parent's history of maltreatment victimization and their subsequent perpetration of child abuse and neglect. However, the identity of the violent adult in these studies is unclear, as is the individual's relationship with the child's caregiver, the type(s) of violence acts perpetrated by this adult, and whether these acts would qualify as IPV. Although promising, the application of this finding to intimate partner violence specifically would be purely speculative. In order to better understand whether intimate partner violence explains the continuity of child maltreatment further research is warranted.

Present study

The present study builds upon previous research in several important ways. First, this study adds to the existing literature by examining whether child maltreatment is transmitted across mother-child dyads via the mother's involvement in IPV. Additionally, as previous research typically included only self-report information from one informant source, the present study incorporates information from both mothers and their adolescent daughters, as well as official state record data on child maltreatment. Moreover, given the strong evidence highlighting the mutuality of intimate partner violence, both IPV victimization and perpetration are included, whereas previous studies have often only included one or the other, or only specific types of IPV. Finally, the current study includes both a mother's history of her own child maltreatment and her experience with intimate partner violence, which provides an important opportunity to investigate the unique and mediated impact of maternal history of maltreatment on offspring abuse and neglect in the next generation.

Consistent with the intergenerational transmission of child maltreatment, we hypothesize that mothers who experienced maltreatment as children are more likely to have children who also experience maltreatment. Additionally, as evidence suggests that adults with histories of maltreatment are at increased risk for engagement in aggressive inter-partner conflict (Simons et al., 1993) and that children are at greater risk for child abuse and neglect when violence occurs in the home (U.S. Department of Health and Human Services, 2016), we hypothesize that a mother's history of maltreatment will predict increased IPV involvement, and that IPV will contribute to her child's risk for maltreatment victimization, thereby serving as a mediating process by which child abuse and neglect persists from parent to child.

Method

Participants

Participants for the current investigation included adolescent girls ($N=245$) and their mothers from an urban setting in upstate New York. Data for the present study were from the baseline assessment of a larger randomized control trial. Adolescent girls were on average 13.96 years old ($SD=.86$) and mothers were on average 39.06 years old ($SD=6.73$). The majority of adolescents (62.9%) and mothers (65.5%) were African-American, 22.4% of adolescents and 23.8% of mothers were white, and 14.7% of adolescents and 10.6% of mothers identified as multiple or other races. 13.9% of adolescents and 10.2% of mothers were Latina. The majority of mothers were not married (80.4%), and the average total family income was \$28,302. Approximately half of the adolescents had a history of maltreatment (53.5%).

Procedures

Informed consent was obtained from parents for participation in the research and for examination of any Department of Human Services (DHS) records pertaining to the family. Assent was obtained from adolescents. To be eligible for the study, all families had to be eligible for Temporary Assistance to Needy Families (TANF). Multiple methods were utilized to recruit children in the maltreated group, including collaborating with the University of Rochester Medical Center's pediatric social workers, contacting schools and organizations that served adolescents, recruitment in DHS waiting rooms, and through a DHS liaison who examined Child Protective Services (CPS) reports to identify children who had been maltreated and/or were part of a family with a history of maltreatment. Children living in foster care often experience early and extreme maltreatment. They were not recruited for the current investigation to reduce heterogeneity among the maltreated sample. The collaborating recruitment partners contacted eligible families and described the study. Parents who were interested in having their child participate provided signed permission for their contact information to be shared with project staff. Comprehensive reviews of DHS records were conducted as described below in the Measures section.

Because maltreating families primarily are of low socioeconomic status (National Incidence Study – NIS-4; Sedlak et al., 2010), nonmaltreating families were recruited from those receiving TANF in order to ensure socioeconomic comparability. A DHS liaison contacted eligible nonmaltreating families and described the project. Parents who were interested in participating signed a release allowing their contact information to be given to project staff for enrollment.

All assessments were conducted between 2011 and 2016 by trained interviewers who were unaware of the maltreatment status of the adolescents or the study hypotheses. Because of possible variations in reading ability and literacy, all self-report measures were read to participants while they followed along and indicated their responses. Mothers and adolescents were interviewed simultaneously in separate rooms. All study procedures met approval by the University Institutional Review Board.

Measures

Maternal history of child maltreatment.—The Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003) is a 25-item self-report measure that assesses retrospective accounts of child maltreatment. Mothers rated statements reflecting experiences occurring before their age of 18 on a 5-point scale with response options ranging from Never True to Very True. Examples include “I got hit so hard by someone in my family that I had to see a doctor or go to the hospital,” and “When I was growing up, I didn’t have enough to eat.” Maltreatment subtypes represented on the scale include emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect. Based on established cutoffs, the presence or absence of each subtype of maltreatment was determined (Walker et al., 1999). A summary of the number of maltreatment subtypes experienced during childhood by the mother was calculated and used in subsequent analyses. The CTQ has evidenced good internal consistency ($\alpha = 0.66 - 0.92$; Bernstein & Fink, 1998) and convergent validity with other self-report and interview measures of child maltreatment (Bernstein et al., 2003; Hyman, Garcia, Kemp, Mazure, & Sinha, 2005). In the current study, subscales demonstrated good internal consistency ($\alpha = 0.71 - 0.96$).

In the current sample, 68.7% of mothers indicated a history of some form of maltreatment. Of those mothers with maltreatment histories, 25.5% met criteria for one subtype, 22.8% met criteria for two subtypes, 20.7% met criteria for three subtypes, 15.7% met criteria for four subtypes, and 15.2% met criteria for five subtypes. The mean number of subtypes experienced among mothers with a maltreatment history was 2.72 ($SD=1.40$).

Maternal intimate partner violence.—The Conflict Tactics Scale-2 (Straus, Hamby, Boney-McCoy, & Sugarman, 1996) is a 78-item measure assessing IPV in the past year. Mothers indicated how often various situations occurred in the past year with response options ranging from 0=Never to 6=More than 20 times. Sample items include “My partner pushed or shoved me” and “I called my partner fat or ugly.” The following subscales were used as indicators of a latent construct, as described below: psychological aggression-victim, physical assault-victim, sexual coercion-victim, psychological aggression-perpetrator, and physical assault-perpetrator. We did not include perpetration of sexual coercion because of the very low level of endorsement of these items. There are numerous methods for scoring this measure. Scores for the five indicators were calculated following Straus, Hamby, & Warren (2003) recommendations by summing the midpoints for the response categories chosen by the participant. For example, for response option 3 “3 to 5 times,” the midpoint is 4. Because of the high skew and kurtosis of these variables, log transformations were conducted. The CTS-2 is a widely used measure of IPV and its psychometric properties have been well-established (Straus et al., 2003). For the current study, the CTS-2 also demonstrated good reliability across subsamples ($\alpha = 0.79 - 0.92$).

In the current sample, 75.5% of mothers indicated having a current intimate partner. Mothers who did not have a current partner were scored a “0” because of their current lack of involvement in intimate partner violence. Although it is possible that women not in a current romantic relationship may remain involved in IPV with a former partner this was not assessed.

Adolescent maltreatment.—Maltreatment status was determined based on DHS record review of indicated CPS reports and/or on maternal report on the *Maternal Child Maltreatment Interview* (MCMI; Cicchetti, Toth & Manly, 2003). Consistent with procedures in the Maltreatment Classification System (Barnett, Manly, and Cicchetti, 1993), maltreatment status was based on all available information and did not rely solely on DHS labels. For the MCMI interview, trained research assistants interviewed mothers of adolescent participants. Both forms of information were coded by trained research staff and a clinical psychologist, using the Barnett et al. (1993) nosological system for classifying child maltreatment, and if maltreatment was present in either DHS records or the MCMI, the adolescent was considered to have been maltreated. Approximately 76% of the maltreated sample had official documentation in record data of abuse and/or neglect, and 24% had maltreatment reported by the families that was not present in official records. It is important to note that although witnessing domestic violence within the home is classified as a form of emotional maltreatment in the Maltreatment Classification System, given the overlap of this construct with maternal IPV, we removed the cases that experienced emotional maltreatment via witnessing domestic violence as the only form of maltreatment from the current investigation.

Maltreated ($n=131$) and nonmaltreated ($n=114$) adolescents were compared on demographic characteristics and study variables. Results indicated that groups were comparable on all demographic characteristics. Specifically, no significant differences were found between groups on adolescent age, race, and ethnicity, and mother age, race, and ethnicity. Moreover, groups did not differ on total family income or maternal marital status.

Adolescent dating violence.—Adolescents reported on dating violence in their current or most recent (past year) romantic relationship using the Conflict in Adolescent Dating Relationships Inventory (CADRI; Wolfe, Scott, Reitzel-Jaffe, Wekerle, Grasley, & Straatman, 2001). Sample items include “My partner slapped me or pulled my hair,” and “I threatened to hit or throw something at my partner.” Response options ranged from 0=Never to 4=Often. Strong psychometric properties have been documented for the CADRI (Wolfe et al., 2001). In the current sample, 52.2% of adolescents reported having a current dating partner. A binary variable was created such that involvement in a romantic relationship with any dating violence in the past year was coded “1” and involvement in a romantic relationship without dating violence, and no involvement in a romantic relationship, were coded “0.” Thus, as coded, this variable indexed the presence or absence of involvement in a romantic relationship with dating violence in the past year.

Data Analytic Plan—Descriptive data analyses were conducted using SPSS 25, and structural equation models (SEMs) were performed using Mplus Version 8 (Muthén & Muthén, 1998–2017). First, measurement modeling was conducted to confirm the factor structure of the proposed five indicators of maternal IPV: psychological aggression-victim, physical assault-victim, sexual coercion-victim, psychological aggression-perpetrator, and physical assault-perpetrator. The maximum likelihood robust (MLR) estimator was used for this confirmatory factor analysis (CFA) to handle the non-normality of the indicators. Results of measurement modeling informed model specification in the subsequent SEM.

The SEM was specified such that maternal history of maltreatment was entered as an exogenous variable. Maternal IPV was modeled as a latent factor predicted by maternal maltreatment history. Adolescent maltreatment was predicted by maternal IPV and maternal maltreatment history. The weighted least squares estimator with mean and variance adjustments (WLSMV) estimator was used for the SEM because of the inclusion of a binary endogenous variable (adolescent maltreatment). WLSMV computes ordinary least squares parameter estimates for continuous outcomes and probit parameter estimates for categorical outcomes. For the endogenous variables, missing data were estimated as a function of the observed exogenous variables under the missing at random assumption (Schafer & Graham, 2002).

Model fit for the CFA and SEM was evaluated using the comparative fit index (CFI), root mean square error of approximation (RMSEA), the standardized root mean square residual (SRMR) and weighted root-mean square residual (WRMR). CFI values greater than .95, RMSEA values less than .06, SRMR values less than .06, WRMR values less than .90, and a non-significant χ^2 statistic were considered evidence of good model fit (Hu and Bentler, 1999; Yu and Muthen, 2002). Mediation was tested using 95% asymmetric confidence intervals (CIs) using RMediation (Tofighi & MacKinnon, 2011). CIs which do not include the value zero are considered statistically significant.

Results

Table 1 provides the zero-order correlations among study variables. Results indicated a significant association between maternal history of child maltreatment and maltreatment of the adolescent ($r=.31, p<.01$). Moreover, maltreatment of the adolescent was associated with higher levels of maternal perpetration of psychological aggression ($r=.22, p<.01$) and maternal perpetration of physical assault within her romantic relationships ($r=.19, p<.01$), as well as higher levels of maternal victimization of psychological aggression ($r=.17, p=.05$), maternal victimization of physical assault ($r=.22, p<.05$), and maternal victimization of sexual coercion ($r=.17, p<.05$). Consistent with the intergenerational transmission of maltreatment, 72.5% of maltreated adolescents had a mother with a history of child maltreatment compared to 51.8% of nonmaltreated adolescents. Among maltreated adolescents, 27.5% had a mother without a history of child maltreatment compared to 48.2% of nonmaltreated adolescents ($\chi^2(1)=11.26, p=.001$).

Confirmatory factor analysis (CFA) was conducted to determine the factor structure of maternal IPV. Indicators included psychological aggression-victim, physical assault-victim, sexual coercion-victim, psychological aggression-perpetrator, and physical assault-perpetrator. Results supported a one factor model ($\chi^2(4) = 29.35, p<.001, CFI=.94, RMSEA=.17, SRMR=.038$), with statistically significant factor loadings ($\lambda=.52-.91$) and correlated residuals between indicators psychological aggression-victim and psychological aggression-perpetrator ($b=.89, p<.001$).

Next, a SEM was conducted as specified above. The model evidenced good fit to the data ($\chi^2(12) = 15.88, p=.20, CFI=.98, RMSEA=.04, WRMR=.45$; see Figure 1 for a graphical representation of the model and model results). Results indicated that mothers with higher

levels of child maltreatment experiences reported more IPV in their past year romantic relationship ($b=.30$, $SE=.07$), $p<.001$). Moreover, higher levels of maternal maltreatment predicted a greater likelihood of adolescent maltreatment ($b=.32$ ($SE=.08$), $p<.001$), as did higher levels of maternal IPV ($b=.25$ ($SE=.10$), $p=.01$).

The 95% asymmetric confidence intervals were calculated to test the significance of the mediated effect of interest (i.e. maternal child maltreatment→maternal IPV→adolescent maltreatment). This method was selected because it has been shown to provide more accurate confidence intervals (MacKinnon, 2008) and to be more highly powered for testing mediation effects in samples of this size (Fritz & MacKinnon, 2007). Confidence intervals that do not include the value zero are considered statistically significant. Results indicated that maternal IPV is a significant mediator in the intergenerational transmission of maltreatment (LCL=.008, UCL=.106).

Secondary analyses.

Exploratory analyses were also conducted to examine the association between adolescents' maltreatment status and involvement in a romantic relationship with IPV. The purpose of these secondary analyses was to test whether the cycle of intergenerational transmission of maltreatment mediated by IPV was beginning to emerge within the second generation of participants in this study. Indeed, preliminary analyses indicated that maltreated adolescents reported a greater likelihood of involvement in a relationship with IPV (62.4%) than did nonmaltreated adolescents (37.6%; $\chi^2(1) = 8.08$, $p=.005$).

Discussion

In order to advance the current understanding of the mechanisms underlying the intergenerational continuity of child maltreatment within families, this study examined (a) the direct link between a mother's history of child maltreatment and her adolescent daughter's experience of maltreatment and (b) exposure to maternal IPV as a mediator for the continuity of child abuse and neglect. Additionally, preliminary analyses were conducted to determine whether this cycle of maltreatment via an IPV mediational mechanism may be repeated in the next generation. Specifically, the link between adolescents' maltreatment and their involvement in dating violence was examined in a separate secondary analysis.

Consistent with the hypotheses, the results supported the intergenerational transmission of child abuse and neglect within families, and identified a potential mechanism to partially explain this continuity. Specifically, we found that a mother's maltreatment history directly predicted her adolescent daughter's maltreatment victimization, consistent with the intergenerational transmission of maltreatment hypothesis and previous research (Berlin et al., 2011; Thornberry & Henry, 2013; Thornberry et al., 2012). Although the continuity of maltreatment is not deterministic, other studies have similarly found a strong probabilistic association of a mother's history of maltreatment on her child's risk for maltreatment, even after adjusting for co-related risk factors shown to impact child abuse and neglect incident rates, such as the mother's age, education, and income (Berlin et al., 2011).

Additionally, a mother's own child maltreatment history increased her experience of violence in her adult romantic relationship. This outcome is consistent with previous work demonstrating the increased susceptibility for both dating violence in adolescence and adult IPV among those with a history of child abuse and neglect (Caetano, Field, Ramisetty-Mikler, & McGrath, 2005; Capaldi et al., 2012; Gómez, 2011; Hendy et al., 2003; Linder & Collins, 2005; McCloskey, 2013). Maltreated individuals who exhibit aggressive or delinquent tendencies may associate with as well as date similarly deviant partners and often have interpersonal relationships characterized by hostility (Feiring & Furman, 2000; Simons et al., 1993). Maltreated individuals' beliefs on the acceptability or normality of violence as a conflict resolution strategy may similarly influence their use of interpersonal aggression. These findings elucidate the enduring impact of early abuse and neglect exposure on subsequent relational adjustment on multiple interpersonal domains across the lifespan.

Importantly, we also found that maternal IPV partially mediated the intergenerational transmission of child abuse and neglect. The role of IPV as a pathway underlying a mother's history of maltreatment victimization to that of her offspring's is consistent with previous research that highlights the overlap between the two forms of familial violence (Appel & Holden, 1998; Hamby, Finkelhor, Turner, & Ormrod, 2010; Herrenkohl et al., 2008). Child maltreatment is a robust predictor of IPV (Appel & Holden, 1998; Hamby et al., 2010), whereas IPV exposure increases the risk of more severe maltreatment perpetration (Hamby, Finkelhor, Turner, & Ormrod, 2010). We advance the extant literature by demonstrating that maternal IPV represents a pathway by which maltreatment is transmitted from one generation to the next. Critically, our measurement of maltreatment did not include witnessing IPV, thus the association between maternal IPV and her child's maltreatment status was not inflated by overlap between these two constructs.

Intimate partner conflicts may function as a mechanism for the intergenerational transmission of maltreatment via an increase in parents' hostility and aggression, thereby compromising their ability to respond positively to the needs of their child, and similarly increasing the likelihood that they will utilize overly punitive parenting techniques. Within the context of IPV, caregivers in conflict may be emotionally or physically unable to meet the needs of their children (Holden, 2003), elevating the risk for various forms of child maltreatment within these families. Children may also be harmed or face threat of harm during some instances of IPV (Holden, 2003). Given what is known about the elevated risk for the continuity of child maltreatment in the convergence of multiple potentiating risk factors (Belsky, 1993; Cicchetti & Lynch, 1993; Cicchetti & Rizley, 1981; Cicchetti & Valentino, 2006), the consistent concordance between both forms of familial violence (Appel & Holden, 1998; Hamby et al., 2010; Herrenkohl et al., 2008), and the maladaptive interpersonal patterns that can exist for many maltreated individuals (Berlin et al., 2011; Cicchetti & Toth, 2016; Dodge et al., 1990), our findings build upon the existing literature by demonstrating that the presence of IPV among maltreated parents is a putative mediated mechanism that contributes to child abuse and neglect perpetration from mother to child.

We also found preliminary evidence for the potential continuation of this connection between maltreatment victimization and partner violence involvement among the adolescent

females. That is, in addition to maternal IPV serving as a process contributing to increased incidences of offspring maltreatment, we also found that the adolescents' maltreatment history subsequently predicted their exposure to violence within their own romantic relationships. Evidence suggesting that the adolescent's history of maltreatment predicts her dating violence involvement is consistent with the extant literature (Capaldi et al., 2012; Kwong et al., 2003; Laporte, Jiang, Pepler, & Chamberland, 2011) and provides preliminary support for the continued intergenerational transmission of maltreatment via IPV in the next generation.

In accordance with the interpersonal difficulties found in adults with childhood histories of maltreatment, maltreatment victimization has been shown to predict increased aggression, delinquent behaviors, and relational difficulties in adolescents, relative to youths without a maltreatment history, and above and beyond other confounding factors, such as poverty and family stress (Lansford et al., 2002). The maltreated offspring of a mother with her own history of child abuse and neglect is expected to be similarly susceptible to the same ecological processes. In turn, the adolescent likewise comes to utilize an aggressive interpersonal style toward her own romantic partners. Moreover, when these maltreated adolescents become parents themselves, it is anticipated that partner violence will continue to serve as a pathway through which their own offspring may become victims of maltreatment. Identification of the emergence of this repeated pattern within the mother-child dyad can inform the types of preventive measures utilized, with emphasis placed on targeting and providing services for high risk groups with maltreatment histories and relationship violence. While promising, this proposed cyclical pattern is currently speculative and requires further empirical investigation and confirmation.

The current study has a number of strengths. The inclusion of child maltreatment and IPV measures for both mothers and their adolescent daughters provides for a more nuanced examination of the intergenerational transmission of maltreatment in a diverse sample of economically disadvantaged mothers and their adolescent daughters. The co-occurrence of maltreatment and intimate partner violence is well-documented; however, to our knowledge, no study has examined whether the presence of maternal IPV in families with mothers with maltreatment histories explains maltreatment continuity. Additionally, this study included mothers' maltreatment history ascertained via self-report, CPS-substantiated records and maternal-report of maltreatment for their adolescent daughters, as well as mothers' and adolescents' self-report of IPV. Finally, inclusion of the adolescent's own involvement in dating violence as predicted by her maltreatment status enabled the evaluation of the continuation of this cycle of violence (maltreatment to intimate partner violence) from parent to child.

Although the current study has a number of strengths, several limitations are present. Adolescent maltreatment was conceptualized as a binary variable indicating whether maltreatment occurred at any point during the adolescent's lifetime. Our study was also cross-sectional, which limits our ability to speak definitively about the proposed directionality of effects. Although conceptually reasonable, future longitudinal research is needed to confirm our conclusions regarding IPV preceding child maltreatment. In addition to official, substantiated records of child maltreatment, maternal-report of her child's

maltreatment history was also used, the latter of which may be influenced by recall or social desirability biases. Use of maternal self-report for her own history of child maltreatment is likewise susceptible to the same limitations. Our model relied primarily on maternal self-report which may contribute to shared method variance. As our study was composed of low-income, ethnically diverse families, the generalizability of our findings to other settings and families will also require replication. The current study design also necessitated an oversampling for maltreatment and does not accurately represent the actual prevalence of maltreatment in the general population. However, it is worth noting that the focus of the current paper is on elucidating the processes that underlie maltreatment continuity and not on typifying estimates of intergenerational continuity.

Finally, our measurement of maternal intimate partner violence was limited to the occurrence of IPV within mothers' *current* intimate relationship only. Mothers who reported not being in a current intimate relationship were coded '0' (as not being involved in a current IPV relationship). However, it is possible that there may be some mothers who were coded '0' (i.e., not in a current IPV relationship) who remained involved in a violent relationship with a former partner. It is noteworthy that scoring such participants as not in a current IPV relationship would be expected to have a dampening effect on our results. Therefore, the significant effect of maternal IPV on adolescent maltreatment with this more conservative approach further strengthens our findings.

Future Directions

In addition to exposure to maternal IPV and mothers' own history of child maltreatment victimization, other factors may contribute to the intergenerational continuity of child maltreatment (see Sturge-Apple et al, in press, for a review). Critically, further research is required to continue to elucidate mediated mechanisms underlying continuity based on currently known risk factors. Further work is also needed to address the role of maltreatment subtypes, timing, chronicity, and severity in increasing the likelihood of the intergenerational transmission of child maltreatment as well as contributing to heightened risk for IPV. A recent study by Thornberry and Henry (2013) that utilized Child Protective Service records found that substantiated instances of maltreatment that started or persisted into adolescence were not only associated with severe and chronic maltreatment but also robustly predicted the maltreated adolescents' own perpetration of child abuse and neglect, as adults. It remains to be seen whether, in the face of persistent maltreatment, elevations in problematic intimate relationships will also emerge for maltreated adolescents. Further work is also needed on *how* child maltreatment influences subsequent dating violence behaviors. For instance, child sexual abuse is predictive of more sexual partners and more risky sexual behaviors in adolescents (McCloskey, 2013), all of which may place these adolescents at risk for sexual violence and/or other types of violence in their intimate relationships.

Similar to the heterogeneity in maltreatment subtypes, it is likely that heterogeneity exists in adolescent dating violence, with these differences being potentially prognostic of varied developmental and mental health outcomes. A recent cross-sectional study identified 5 unique adolescent dating violence subtypes, some of which were associated with community violence exposure, physical aggression, and delinquent behaviors (Goncy, Sullivan, Farrell,

Mehari, & Garthe, 2017). Replication and additional longitudinal research is needed to examine the role of child maltreatment exposure on adolescent dating aggression typologies, as is research on additional adverse outcomes for these youths, such as substance use and depression.

Our findings also have important clinical implications for addressing the cycle of child maltreatment, specifically, and family violence more broadly. Some risk factors for child maltreatment perpetration and intimate partner violence overlap, including poor mental health, familial stress, unemployment, and substance use (Herrenkohl et al., 2008; Sturge-Apple et al., in press; Vagi et al., 2015). As such, treatment should follow a holistic approach through which the specific needs of the family are concurrently or systematically addressed (Thornberry & Henry, 2013). Likewise, focusing on IPV and child maltreatment's shared risk factors may reduce both current and potential future risk of familial or interpersonal violence (Vagi et al., 2015). Finally, as IPV is associated with greater acceptance of the use of interpersonal violence and aggressive response biases both mothers and daughters may benefit from anger management and copings skills training to help them develop more appropriate ways to regulate their emotions and to de-escalate conflict before it culminates into violence (Hendy et al., 2003; Temple, Shorey, Tortolero, Wolfe, & Stuart, 2013).

Research has begun examining attributes that distinguished families with an ongoing pattern of child maltreatment (maintainers) from those with only a history of child maltreatment (cycle-breakers). Dixon and colleagues (2009) found that financial instability and feeling more socially isolated were associated with maintainers of violence but not cycle breakers. Social isolation or residing in less socially cohesive communities may decrease a family's opportunities for obtaining assistance or financial resources to address their basic needs. Families in these environments may also have less opportunities to learn about and thus practice more effective and less punitive parenting techniques. Although this prior research may indicate that providing parents with access to social and financial support may disrupt the continuity of maltreatment during early infancy, it is less clear whether cycle breakers will eventually become perpetrators as the child develops.

To this end, early intervention to improve familial relationships may be an important strategy, particularly for mothers with maltreatment histories. Models such as Child-Parent Psychotherapy (CPP) have demonstrated efficacy for improving outcomes for families impacted by IPV (Lieberman, Ippen, & Van Horn, 2015). CPP addresses factors such as parent and child responses to trauma, parenting practices, representational models of relationships, perceptions towards violence, and other risks that may perpetuate violence and maltreatment. A central focus of treatment to prevent violence perpetration may be to improve the way that the parent understands and relates to his or her child to promote healing following trauma and to address nonviolent conflict resolution. This intervention goal is supported by empirical work that suggests that a positive mother-daughter relationship diminishes the risk for adolescent dating violence (Cleveland, Herrera, & Stuewig, 2003; Vagi et al., 2013).

In conclusion, the present study is the first to examine maternal intimate partner violence as an underlying mechanism of the intergenerational transmission of child maltreatment

within a sample of low-income mothers and adolescent daughters. Results indicated that the intergenerational transmission of child maltreatment was mediated by maternal IPV, such that mothers with their own histories of child maltreatment were more likely to be involved in violent intimate relationships, which significantly elevated their child's risk of maltreatment. Interestingly, secondary analyses also provide some compelling evidence for the emergence of the same pattern of violence among their adolescent daughters, with child maltreatment victimization predicting subsequent intimate partner violence engagement among maltreated adolescents. Thus, our findings highlight two critical points of intervention to interrupt the cycle of violence within families.

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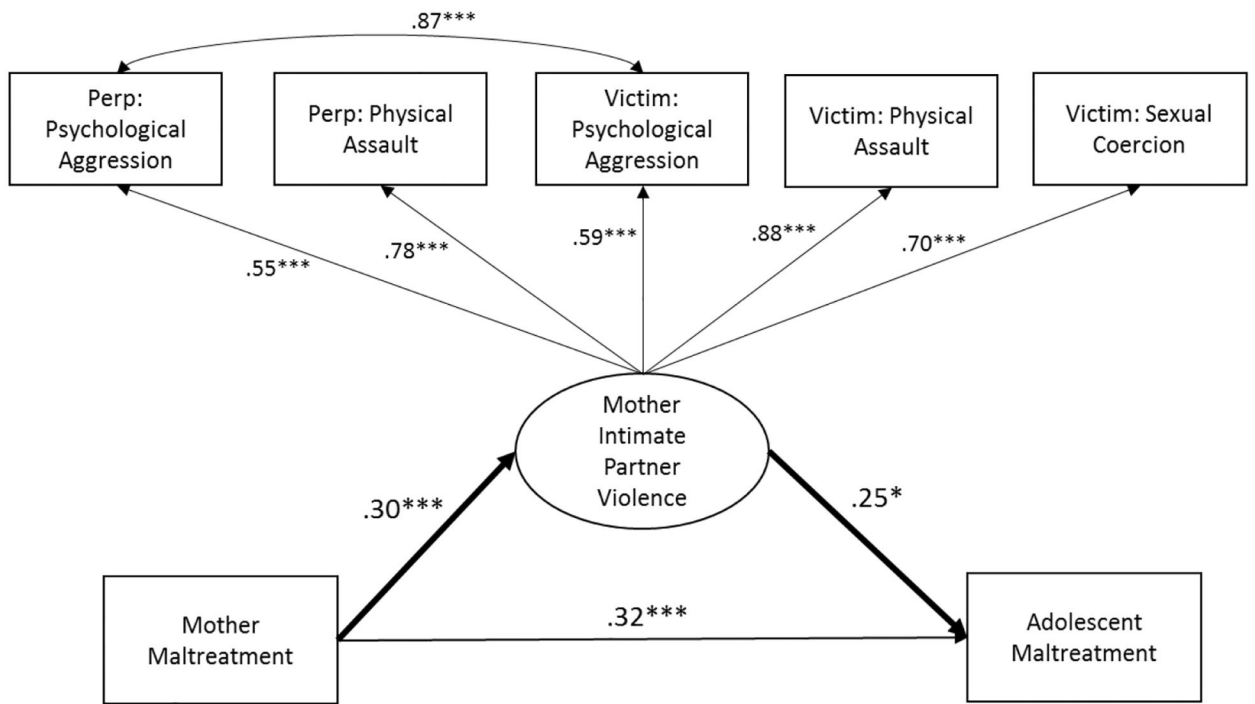


Figure 1.
Graphical representation of SEM results

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Table 1.

Zero-order correlations among study variables

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. |
|-------------------------------|-------|-------|-------|-------|-------|------|----|
| 1. Mother maltreatment | - | - | - | - | - | - | - |
| 2. M: Psych aggression perp | .20** | - | - | - | - | - | - |
| 3. M: Physical assault perp | .22** | .53** | - | - | - | - | - |
| 4. M: Psych aggression victim | .26** | .44** | .69** | - | - | - | - |
| 5. M: Physical assault victim | .23** | .91** | .51** | .50** | - | - | - |
| 6. M: Sexual coercion victim | .19** | .35** | .51** | .67** | .37** | - | - |
| 7. Adolescent maltreatment | .31** | .22** | .19** | .17* | .22** | .17* | - |

Notes: M=mother, perp=perpetrator,

*
 $p < .05$,

**
 $p < .01$