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Does the Cessation of Intimate Partner Violence Lead to Improvements in Child Adjustment?

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IN CHILD ADJUSTMENT?

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Abstract

This study examined whether the cessation of intimate partner violence (IPV) predicts lower levels of child externalizing and internalizing problems, and whether longer periods of IPV cessation (i.e., 12 months versus 6 months) predicts lower levels of child externalizing and internalizing problems. Mothers and their children aged 7 to 10 were recruited from domestic violence shelters (n = 88) and the community (n = 440). Mothers and children completed measures of IPV at three assessments, each 6 months apart. Mothers and children completed measures of children's externalizing problems and internalizing problems at the first and third assessment. Families were categorized into groups based on patterns of cessation of any IPV across an 18-month period: 1) no IPV, 2) 12-month cessation, 3) 6-month cessation, and 4) no-cessation. Families were also categorized into groups according to patterns of cessation of severe IPV across an 18-month period. For IPV defined by either any IPV or severe IPV, children in the no-cessation group had more externalizing and internalizing problems than children in the 12-month and 6-month cessation groups. For IPV defined by severe IPV, these group differences remained after accounting for IPV frequency. After accounting for IPV frequency and baseline child adjustment problems, children in the no-cessation group had more externalizing problems than children in the cessation groups. Child age did not moderate findings. Findings suggest that, following exposure to IPV, stopping exposure to later severe IPV is an important indicator for children's externalizing problems.

Does the Cessation of Intimate Partner Violence Lead to Improvements in Child Adjustment?

Approximately 15 million children are estimated to live in a household in which intimate partner violence (IPV) occurred within a year (McDonald, Jouriles, Ramisetty-Mikler, Caetano, & Green, 2006), and an estimated 16% of American children have witnessed IPV at least once in their lifetime (Finkelhor, Turner, Shattuck, & Hamby, 2015). A large body of research has concluded that children's exposure to IPV is associated with children's adjustment problems (Evans, Davies, DiLillo, 2008; Kitzmann, Gaylord, Holt, & Kenny, 2003; Wolfe, Crooks, Lee, McIntyre-Smith, & Jaffee, 2003), with the magnitude of this association strengthening over time (Vu, Jouriles, McDonald, & Rosenfield, 2016). Although this association is robust, some children exposed to IPV develop few or no adjustment problems (Grych, Jouriles, Swank, McDonald, & Norwood, 2000; Hungerford, Wait, Fritz, & Clements, 2012). Identifying factors that may explain the heterogeneity in child outcomes following IPV exposure is important for understanding the development of child adjustment problems.

Most research evaluating the link between IPV and child adjustment problems measures IPV at a single time point, and focuses on either the presence of IPV (present vs. absent) or the frequency of IPV during a specified period of time (past year, past 6 months). Very little research on IPV and child adjustment problems measures IPV at multiple time points and considers patterns of IPV across time, such as whether there has been a period of cessation (time period in which there has been no IPV). However, longitudinal research in the literature on adult IPV suggests that IPV is best conceptualized as a dynamic variable, with heterogeneity in its continuity over time. That is, for some adults, IPV persists over time without periods of cessation (e.g., Bair-Merritt, Ghazarian, Burrell, & Duggan, 2012; Crowne, Juon, Ensminger, Bair-Merritt, & Duggan, 2012; Margolin et al., 2009; O'Leary et al., 1989; Jasinski, 2001). For others, IPV

may fluctuate between periods of cessation and recommencement (e.g., Bair-Merritt et al., 2012;

Crowne et al., 2012; Margolin et al., 2009; Jasinski, 2001).

Cessation of IPV

Periods of cessation of IPV (in which zero acts of IPV occur within a specified

timeframe) may contribute to the heterogeneity in child outcomes following exposure to IPV.

However, surprisingly little is known about how the cessation of IPV may influence children.

Researchers have posited that children respond well during periods in which IPV has ceased; that

is, children may begin to recover and be less likely to exhibit adjustment problems (Margolin et

al., 2009). Specifically, when IPV ceases, they may "bounce back" to baseline levels of

functioning (i.e., functioning prior to IPV exposure) or even to improved levels of functioning.

These patterns of resilience may be due to children appraising their parents' conflicts as less

threatening or consequential to themselves or their family during periods when IPV has ceased.

Further, coping with social situations involving anger or conflict in the aftermath of IPV is likely

to be more effective than coping in the presence of ongoing, pervasive IPV. Thus, in context of

IPV cessation, these child responses may more readily foster recovery and resilience following

IPV exposure.

Consistent with this notion, studies examining the prospective relation between the

frequency of IPV and child adjustment problems suggest that children are sensitive to changes in

frequency of IPV. Specifically, increases and decreases in the frequency of IPV predict

corresponding increases and decreases in child adjustment problems (Kennedy et al., 2009;

Kennedy et al., 2010). Similarly, in the marital conflict literature, fluctuation in levels of marital

conflict predicts change in child adjustment problems. Increases in marital conflict predict

increases in child adjustment problems, and decreases in marital conflict predict decreases in

child adjustment problems (e.g., Barton et al., 2015; Cui, Conger, & Lorenz, 2005; Kouros, Cummings, & Davies, 2010).

In the child maltreatment literature, cessation of maltreatment has been found to have implications for child adjustment. Specifically, children who experienced transitory maltreatment across six years had decreases in child anxiety and depression over time, whereas those who experienced chronic maltreatment had increases in child anxiety and depression over time (Ethier, Lemelin, & Lacharite, 2004). Similarly, children who experienced maltreatment at age 4 and no further maltreatment through age 12 had lower levels of internalizing and externalizing problems than children who experienced repeated maltreatment across the same timeframe (Li & Godinet, 2014).

On the other hand, there are prospective studies that have found within subject changes in the frequency of IPV do not predict subsequent change in child adjustment problems (e.g., Jouriles, Rosenfield, McDonald, & Mueller, 2014). Furthermore, within the child maltreatment literature, there is mixed evidence as to whether removing children from an abusive home environment (i.e., one form of cessation of violence exposure) has protective or maladaptive effects on children's adjustment (e.g., Berger, Bruch, Johnson, James, & Rubin, 2010; Knorth, Harder, Zandberg, & Kendrick, 2008). Thus, it is unclear whether cessation of IPV will have important implications for child adjustment problems.

Furthermore, when examining cessation of IPV, little is known about whether the length of cessation periods is important to consider. Specifically, will children benefit from longer, as opposed to shorter, periods of cessation from IPV? It seems plausible that with longer periods of cessation from IPV, children would have more time to recover from, and therefore increase their chances at developing resiliency to, the violence. However, this aspect of IPV cessation remains

unexplored in both the literature on IPV as well as in the literature on child maltreatment, such that cessation of child maltreatment has not been conceptualized by degree of cessation (i.e., cessation is either present or not; English et al., 2005).

Persistence of IPV

Related to this argument, it might be hypothesized from the existing literature on IPV and child problems that persistent exposure (i.e., no periods of cessation) to IPV is related to more problems. Theoretically, initial exposures to IPV may sensitize children to the violence, so that persistent exposure to IPV becomes increasingly difficult for children to cope with over time. For example, initial exposures to IPV may produce a level of physiological and affective arousal that is difficult for children to manage. Persistent exposure to IPV may place children in a constant state of hypervigilance and sustained anxiety to signs of anger and conflict in the home, and eventually, outside the home. As a result, persistent exposure to IPV over time might increase children's risk of developing externalizing and internalizing problems (Fosco, DeBoard, & Grych, 2007).

Research on the frequency of IPV and child externalizing and internalizing problems is consistent with this notion that persistent exposure to IPV is positively related to child adjustment problems. Specifically, frequency of IPV is typically defined as the number of violent acts that have occurred during a specified period (e.g., past year). Thus, the frequency of IPV might be conceptualized as a metric for the amount of exposure to violence. Cross-sectional research consistently indicates that the frequency of IPV is positively associated with child adjustment problems (e.g., D'Andrea & Graham-Bermann, 2017; Kaslow & Thompson, 2008; Owen, Thompson, & Kaslow, 2006). Frequency, of course, is not the same as persistence of violence exposure, because frequency counts of IPV do not capture exposure over time.

Nevertheless, findings from such research is consistent with the idea that the more a child is exposed to long-lasting, persistent IPV, the greater the likelihood of child problems.

Findings in the child maltreatment literature are also consistent with the notion that persistent exposure to IPV will relate positively to child adjustment problems. Specifically, research on child maltreatment and child adjustment suggests that exposure to more chronic maltreatment (i.e., maltreatment that extends over multiple periods and/or with few "gap" periods) is related to more posttraumatic stress symptoms, externalizing problems, and problems in peer relations (English, Graham, Litrownik, Everson, & Bangdiwala, 2005; English et al., 2005; Graham et al., 2010; Manly, Cicchetti, & Barnett, 1994).

Alternatively, it might be posited that children who are exposed to persistent, chronic IPV may become more desensitized to the violence over time and therefore have fewer child adjustment problems compared to children who are exposed to less chronic patterns of IPV. Witnessing IPV could initially elicit strong negative emotional reactions, yet after repeated exposure, these emotional reactions could dampen, resulting in less emotional distress. This emotional numbing may be adaptive in the short term, allowing children to function in a high-risk environment. However, little empirical evidence supporting this notion has been found.

At least one study has examined duration of IPV and its relation to child adjustment problems. In a community sample of mothers with children at ages 2, 3, and 4 years, mothers' reports of IPV predicted clinical levels of child adjustment problems as reported by mothers (i.e., T scores of 60 or greater on CBCL externalizing and internalizing subscales), but duration (i.e., amount of time) of exposure to IPV was not related to clinical levels of child adjustment problems (Martinez-Torteya et al., 2009). However, while duration may be one way of examining persistence of IPV, it is possible that duration may not provide a sensitive assessment

of persistence of IPV, particularly if cessation periods (i.e., when such periods occur and for how long) may be important in fostering child recovery processes. Specifically, two children could be exposed to similar durations of IPV but experience different patterns of cessation. For example, one child may be exposed to IPV during a two-year period followed by a year of no IPV, and a second child may alternate between experiencing IPV for one year, experiencing no IPV the next year, and experiencing IPV again the third year.

The severity of the IPV may be important when considering the cessation of IPV. "Moderate" acts of IPV (e.g., pushing or shoving) are acts that are more common than severe acts (e.g., used a knife or gun), and they typically lead to less physical injury compared to severe acts (Straus, Hamby, Boney-McCoy, & Sugarman, 1996). In the exposure to IPV literature, some studies found that children and adolescents' exposure to severe acts of IPV is related to externalizing problems (i.e., general crime, violent crime, and other externalizing behaviors), internalizing problems, and use of emergency room services, both concurrently as well as prospectively into early adulthood (Casanueva, Foshee, & Barth, 2005; Hazen, Connelly, Kelleher, Barth, & Landsverk, 2006; Ireland & Smith, 2009; Park, Smith, & Ireland, 2012; Smith, Elwyn, Ireland, & Thornberry, 2010). However, when exposure to moderate acts of IPV, or any acts of IPV (i.e., either moderate or severe), is examined, relations of IPV with child problems were no longer present (Casanueva et al., 2005; Hazen et al., 2006; Ireland & Smith, 2009; Park et al., 2012; Smith et al., 2010). These studies suggest that severity of IPV matter such that children who are exposed to severe IPV may fare worse than those exposed to less severe forms of IPV. Thus, it is plausible that cessation of severe IPV rather than cessation of any IPV may be meaningful to distinguish in predicting child adjustment problems.

Present Research

The present research builds upon prior research on IPV and child adjustment problems in several important ways. Only a handful of prior studies have accounted for the dynamic nature of IPV by assessing IPV at multiple time points. Presently, it remains unclear whether cessation of IPV is sufficient to lead to subsequent improvements in child adjustment, and whether the length of IPV cessation matters. This study examined how the cessation of IPV relates to child adjustment problems. Given that severity of IPV has been shown to be important in understanding child adjustment problems, this study examined whether cessation of severe IPV, as opposed to any IPV, matters in relation to child adjustment problems. Also, from prior research it is unclear whether cessation of IPV may be important to consider over and above frequency of IPV alone. Given that IPV is often measured by frequency in the occurrence of violent acts (for a review, see Kitzmann et al., 2003), this study evaluated the utility of examining cessation of IPV after accounting for frequency of IPV.

Using three time points spaced six months apart each, I first attempted to replicate findings that children exposed to IPV have more child externalizing and internalizing problems than those not exposed to IPV. I also explored whether cessation of IPV predicts child externalizing problems and internalizing problems across two samples: a community sample and a shelter sample. To determine whether cessation of IPV is important to consider over and above frequency of IPV, frequency of IPV was included as a covariate. I hypothesized that children exposed to IPV that does not cease will have more externalizing and internalizing problems compared to those exposed to IPV that have periods of cessation (i.e., 6 or 12 months), even after accounting for frequency of IPV, and that these findings will be present when considering cessation of any IPV as well as cessation of severe IPV. Furthermore, children who experienced

more cessation (i.e., 12 months) would have fewer externalizing and internalizing problems than those who experienced less cessation (i.e., 6 months). In addition, IPV cessation patterns and its prediction of change in child externalizing and internalizing problems were explored. Specifically, I examined whether cessation of IPV predicted later child externalizing and internalizing problems, after accounting for baseline levels of child problems. Lastly, the impact of persistence of violence has differed by child age in child maltreatment research, such that maltreatment that does not cease results in more externalizing and internalizing problems for older children than younger children (Li & Godinet, 2014). Therefore, this study also explored child age as a potential moderator.

Method

Participants

Data for this study were obtained as part of a larger project on IPV and child adjustment. The project included two samples: a sample recruited from domestic violence shelters in a large urban area in the southwest, and a community sample recruited from the same neighborhoods in which the shelter families resided prior to their shelter entry.

Community sample. Families were identified using blocks of phone numbers drawn at random from census tracts in which shelter families resided prior to admission to the shelter. Families were recruited by speaking with the mothers in the families, whom were invited to participate in a phone screening for a study on families and conflict resolution. Families were eligible if the following criteria were met: a) the mother had a biological child between the ages of 7 and 10 years, b) the child had not been previously diagnosed with intellectual disability or developmental delay, c) both the mother and child spoke English well enough to take part in an interview conducted in English, and d) the mother had been in a relationship with a male

intimate partner for at least five of the six months prior to the screening. If there was more than one child in the family that was eligible for the study, the oldest child was invited to participate in the study. Mothers from eligible families were told they would receive monetary compensation for their participation and were provided with a description of the study.

Of participants included in the larger study, a subsample was analyzed if the following criteria were met: 1) data on IPV is available at all three assessments, 2) participants reported either no IPV (i.e., any or severe) at all three assessments or they reported IPV (i.e., any or severe) at baseline (see Measures section for additional information on how IPV variables were computed). There were 470 participants included in the present study. On average, children (244 male, 226 female) were 8.5 ($SD = 1.14$) years of age and mothers were 36.4 ($SD = 6.49$) years of age. The sample of children was 51.53 White, 25.3% Black, 13.8% Hispanic, and 9.6% multiethnic or "other." Mothers completed 14.6 ($SD = 2.57$) years of education on average. The median family income per month was $4,000, with 20.6% of families earning less than $30,000 annually, and 53.0% of families earning less than $50,000 annually.

Shelter sample. Families staying at a domestic violence shelter were invited to participate in a screening for the study. Families were eligible if the following criteria were met: a) there was an occurrence of one or more acts of intimate partner violence within the past six months (this criteria did not apply to the community sample), b) the mother had a biological child between the ages of 7 and 10 years, c) the child had not been diagnosed previously with intellectual disability or developmental delay, d) both the mother and child could speak English well enough to take part in an interview conducted in English, and e) the mother had been in a relationship with a male intimate partner for at least five of the six months prior to the screening. When a family had more than one child eligible for the study, the oldest child was invited to

participate in the study. Mothers from eligible families were told they would receive monetary

compensation for their participation and were provided with a description of the study. They

were informed that the study would begin after the family departed from the shelter and secured

an independent living situation. Additionally, mothers were told that they would remain eligible

even if they returned to their former intimate partners.

Of participants included in the larger study, a subsample was analyzed if the following

criteria were met: 1) data on IPV is available at all three assessments, 2) participants reported

either no IPV (i.e., any or severe) at all three assessments or they reported IPV (i.e., any or

severe) at baseline (see Measures section for additional information on how IPV variables were

computed). There were 88 participants included in the present study. Children (49 male, 39

female) averaged 8.5 (SD = 1.15) years of age and mothers averaged 33.3 (SD = 6.56) years of

age. The sample of children was 27.3% White, 39.8% Black, 17.0% Hispanic, 15.9%

multiethnic or "other." On average, mothers completed 12.2 (SD = 2.56) years of education.

The median family income per month was $1,700, with 56.8% of families earning less than

$30,000 annually, and 78.4% of families earning less than $50,000 annually.

Assessment Procedures

The Institutional Review Board of the institution at which the research was conducted

reviewed and approved the procedures used in the study. Mothers and children completed

assessments in separate rooms, where trained staff members read measures aloud to mothers and

to children. Before administering the child assessments, staff members played games with the

children to develop rapport and engage them in the study. All measures were completed at all

three assessments within the community and shelter samples. Mothers were compensated for

their participation in the study.

Measures

  Physical intimate partner violence. Mothers reported on both her and her partners'

perpetration of physical IPV on the 12-item physical assault subscale of the Revised Conflict

Tactics Scales (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996) during the past 6

months. Item responses ranged from 0 = not in the past 6 months to 9 = every day on a 10-point

response scale. Item responses pertaining to mothers' and partners' perpetration of physical IPV

were summed to form a composite score, with higher scores indicating more frequent physical

IPV. The Conflict Tactics Scale (CTS, Straus, 1979) and the CTS2 (Straus et al., 1996) are

widely used measures in research on IPV (Kitzmann et al., 2003; Vu et al., 2016).

  Children reported on mothers' and mothers' partners' perpetration of physical IPV on a

7-item version of the physical assault subscale of the CTS2. To create this 7-item version,

various items on the 12-item CTS2 were combined to reduce the number of items children would

respond to (e.g., items "push or shove" and "grab" were combined to form item "push, grab, or

shove"). Item responses were 0 = never, 1 = once or twice, 2 = sometimes, 3 = all the time. Item

responses were summed to form a composite score, with higher scores indicating more frequent

exposure to mothers' and mothers' partners' use of physical IPV.

  To examine cessation of IPV as well as distinguish cessation of IPV from frequency of

IPV, IPV will be dichotomized at each assessment to reflect the presence of IPV during the

preceding 6-month period (0 = no IPV, 1 = IPV) for each family. Given that parents and children

often disagree on reports of IPV, and individuals often are more likely to under-report IPV, both

mothers' and children's reports of IPV were used to determine the presence of IPV at each time

point (Hungerford et al., 2010). Specifically, if either the mother or her child reported an act of

physical IPV had occurred within the mother-partner relationship, IPV was coded as present (i.e.,

coded as 1). Percent agreement between mothers' and children's reports of the presence of IPV was 72-75% for any IPV and 83-84% for severe IPV at each time assessment. Similarly, if neither mother nor child reported an act of physical IPV, IPV was coded as not present (i.e., coded as 0). Families were classified into IPV cessation groups, according to the following criteria: 1) no IPV (i.e., no IPV reported across 18-month period, n = 245), 2) 12-month cessation (i.e., continuation of IPV for 6 months followed by 12 months of cessation, n = 80), 3) 6-month cessation (i.e., continuation of IPV for 12 months followed by 6 months of cessation, n = 56), and 4) no cessation (i.e., persistence of IPV across 18-month period, n = 121). For groups in which IPV was present (i.e., groups 2-4), participants were excluded if they did not report IPV during the baseline assessment. A total of 502 families were classified into IPV cessation groups; of the 502 families, 419 were from the community sample and 85 were from the shelter sample.

Families were also classified into IPV cessation groups according to presence of severe IPV. Specifically, severe acts of IPV are defined by the following acts: beat up, burned or scalded on purpose, kicked, slammed against a wall, choked, punch or hit with an object that could hurt, and/or used a knife or gun. Moderate acts of IPV are defined by: thrown an object that could hurt, twisted arm or hair, pushed or shoved, grabbed, and/or slapped. IPV will be dichotomized at each assessment to reflect the presence of severe IPV during the preceding 6-month period (0 = no severe IPV, 1 = severe IPV) for each family. If either the mother or her child reported an act of severe physical IPV had occurred within the mother-partner relationship, severe IPV was coded as present (i.e., coded as 1). Similarly, if neither mother nor child reported an act of severe physical IPV, severe IPV was coded as not present (i.e., coded as 0). Families were classified into severe IPV cessation groups, according to the following criteria: 1) no severe IPV (i.e., no severe IPV reported across 18-month period, n = 366), 2) 12-month cessation (i.e.,

continuation of severe IPV for 6 months followed by 12 months of cessation, n = 69), 3) 6-month

cessation (i.e., continuation of severe IPV for 12 months followed by 6 months of cessation, n =

35), and 4) no cessation (i.e., persistence of severe IPV across 18-month period, n = 45). For

groups in which severe IPV was present (i.e., groups 2-4), participants were excluded if they did

not report severe IPV during the baseline assessment. A total of 515 families were classified into

IPV cessation groups; of the 515 families, 436 were from the community sample and 79 were

from the shelter sample.

IPV frequency and IPV severe frequency as continuous variables were also used in

analyses. Specifically, both mothers' and children's reports of IPV were Z scored, and the higher

Z-score between the two reports was used in analyses.

Children's internalizing problems. Mothers completed the 31-item internalizing

problems scale of the Child Behavior Checklist (CBCL; Achenbach, 1991). Possible item

responses are 0 = not true, 1 = somewhat or sometimes true, and 2 = very true or often true.

Sample items include "unhappy, sad, or depressed" and "feels she/he has to be perfect".

Internalizing problem T scores were used in analyses. The CBCL internalizing scale correlates

with the Parent-version Mood Disorder Questionnaire, Beck Depression Inventory, and the

internalizing scale on the Youth Self-Report (Achenbach & Edelbrock, 1987; Kweon, Lee, Park,

Joo, & Kim, 2016). Coefficient alpha was .83, .82, and .83 at baseline, 6 months, and 12 months

in the community sample and .88, .85, and .85 at baseline, 6 months, and 12 months in the

shelter sample, respectively.

Children completed the 28-item Revised Children's Manifest Anxiety Scale (RCMAS;

Reynolds & Richmond, 1978). Item responses are 0 = no and 1 = yes. Sample items include "I

am nervous" and "I am afraid of a lot of things". Item responses were summed, with higher sums

indicating more internalizing problems. The RCMAS correlates with the Fear Survey Schedule

for Children – Revised, State-Trait Anxiety Inventory, and Children's Depression Inventory

(Muris, Merckelbach, Ollendick, King, & Bogie, 2002; Stark & Laurent, 2001). Coefficient

alpha was .86, .90, and .91 at baseline, 6 months, and 12 months in the community sample and

.88, .88, and .90 at baseline, 6 months, and 12 months in the shelter sample, respectively.

Children's externalizing problems. Mothers completed the 33-item externalizing

problems scale of the Child Behavior Checklist (CBCL; Achenbach, 1991). Possible item

responses are 0 = not true, 1 = somewhat or sometimes true, and 2 = very true or often true.

Sample items include "lying or cheating" and "destroys his/her own things". Externalizing

problem T scores were used in analyses. The CBCL externalizing scale correlates with the

antisocial and conduct problem subscales of the Connors Parent Questionnaire and the socialized

aggression and conduct disorder subscales on the Quay-Peterson Revised Behavior Problem

Checklist (Achenbach, 1991). Coefficient alpha was .88, .89, and .89 at baseline, 6 months, and

12 months in the community sample and .92, .93, and .92 at baseline, 6 months, and 12 months

in the shelter sample, respectively.

Children completed the 9-item Children's Disruptive Behavior Scale (CDBS; McDonald

& Jouriles, 1999). Possible item responses are 1 = none of the time, 2 = some of the time, and 3

= all of the time. Item responses were summed, with higher scores indicating more externalizing

problems. Sample items include "Do other people think you don't do what you are told to do at

home or don't follow the rules?" and "Do other people think you break other people's things on

purpose?" The CDBS correlates with mothers' reports on the CBCL externalizing problems scale

(McDonald & Grych, 2006; Skopp, McDonald, Jouriles, & Rosenfield, 2007). Coefficient alpha

was .75, .83, and .85 at baseline, 6 months, and 12 months in the community sample and .79, .77,

and .84 at baseline, 6 months, and 12 months in the shelter sample, respectively.

Analyses

To evaluate the hypothesis that child externalizing and internalizing problems will differ

according to four groups based on patterns of IPV cessation across an 18-month timeframe, I

conducted a MLM MANOVA using multivariate multilevel modeling (MMLM). MANOVA

conducted using MMLM allows for analyzing multiple dependent variables in one model (i.e.,

mother and child reports of externalizing problems in one model, and mother and child reports of

internalizing problems in a second model), for including all participants who do not have

complete data, and for conducting multivariate contrasts. Scores for each of the dependent

variables were standardized (i.e., converted to Z scores) to place mothers' and children's reports

of child adjustment problems on the same scale (Hox, 2010; Heck, Thomas, & Tabata, 2014). In

each of two models, the IPV cessation grouping variable was entered as a predictor, and Z-

scored mother and child reports of externalizing problems or internalizing problems were entered

as dependent variables. The following model for child externalizing problems was tested below:

$$Zext_{ki} = \gamma00 + \gamma01*IPVCess_k + \gamma10*ExtDummy_k + \mu0_k + \varepsilon_{ki}$$

If the IPV cessation grouping variable was a significant predictor in each of the two

models, a series of orthogonal, multivariate planned comparisons were conducted: 1) the no IPV

group versus the three IPV groups (i.e., no-cessation, 6-month cessation, and 12-month

cessation, 2) the two cessation groups (i.e., 6-month cessation, 12-month cessation) versus the

no-cessation group, and 3) the 6-month cessation group versus the 12-month cessation group.

The following patterns will support my hypothesis: 1) children in the IPV groups have more

externalizing and internalizing problems than the three IPV groups, 2) children in the no-

cessation group have more externalizing and internalizing problems than the cessation groups, and 3) children in the 6-month cessation group have more externalizing and internalizing problems than in the 12-month cessation group. In the case of significant planned group comparisons, I examined whether findings differed between mother and child reports of externalizing and internalizing problems. To do this, mothers' reports and children's reports of externalizing and internalizing problems were dummy coded (0 = mother's report, 1 = children's report). Significant interactions between the cessation groups and this dummy variable indicated that the relation cessation groups and child externalizing or internalizing problems differ across reporter.

To test the hypothesis that child externalizing and internalizing problems differed according to four groups based on patterns of severe IPV cessation across an 18-month timeframe, similar MMLM MANOVA models were repeated using an IPV severe cessation grouping variable. The following model for child externalizing problems was tested below:

$$Zext_{ki} = \gamma 00 + \gamma 01 * IPVSevCess_k + \gamma 10 * ExtDummy_k + \mu 0_k + \varepsilon_{ki}$$

The hypothesized patterns I examined correspond with those I examined using the IPV cessation grouping variable. For comparisons that were significant, I examined whether planned group differences on child problems differed by type of reporter.

To evaluate the hypothesis that child externalizing and internalizing problems at the third assessment differed according to cessation patterns of any IPV and severe IPV over and above frequency of IPV, the above models were repeated with frequency of IPV as a covariate in the MMLM models. For example, the model examining cessation patterns of any IPV for child externalizing problems is as follows:

$$Zext_{ki} = \gamma 00 + \gamma 01 * IPVCess_k + \gamma 02 * IPVFreq_k + \gamma 10 * ExtDummy_k + \mu 0_k + \varepsilon_{ki}$$

My hypothesis was supported if the IPV cessation or severe IPV grouping variables were significantly associated with child externalizing and internalizing problems after accounting for IPV frequency.

Child age was explored as a potential moderator of the relation between IPV cessation groups and child externalizing and internalizing problems at the third assessment. Child age and its interaction with the IPV cessation grouping variable were added in the above models for these exploratory analyses. The model tested for child externalizing problems is as follows:

$$Zext_{ki} = \gamma 00 + \gamma 01*IPVCess_k + \gamma 02*IPVFreq_k + \gamma 03*ChildAge_k + \gamma 10*ExtDummy_{ki} +$$

$$\gamma 11*ChildAge_k*ExtDummy_{ki} + \mu 0_k + \mu 1_k + \varepsilon_{ki}$$

To explore whether, after accounting for baseline child adjustment problems and frequency of IPV, child externalizing and internalizing problems at the third assessment differed according to cessation patterns of any IPV and severe IPV, hypothesis tests were repeated with baseline child externalizing or internalizing problems, as reported by mothers and children, added as covariates in MMLM models. The model tested for child externalizing problems is as follows:

$$Zext_{ki} = \gamma 00 + \gamma 01*IPVCess_k + \gamma 02*IPVFreq_k + \gamma 03*ChildAge_k + \gamma 04*MomReportExtBaseline_k$$

$$+ \gamma 05*ChildReportExtBaseline_k + \gamma 10*ExtDummy_k + \mu 0_k + \varepsilon_{ki}$$

Sample type (i.e., shelter, community) was also examined as a potential moderator in the above models. In the case that sample type as a significant moderator, the above models were conducted in each sample separately. If sample type was not a significant moderator, the above models were conducted with sample type as a covariate.

All effect sizes (*d*) were computed using a *t*-to-*d* conversion formula (Rosenthal &

Rosnow, 1991); this method is sometimes used in research that uses MLM, but the computation

of effect sizes in MLM is a matter of controversy (e.g., Feingold, 2013; 2015).

Results

Preliminary Analyses and Descriptive Information

I conducted chi square tests and ANOVAs to test for differences across the IPV cessation

groups and severe IPV cessation groups on demographics (mother's education, family income,

child sex, and child ethnicity). Child sex did not differ across the cessation groups, *ps > .108*.

Mothers' education, family income, and child ethnicity differed across the groups, *ps < .001*;

therefore, they were used as covariates in subsequent analyses. Mothers' education and family

income was higher in the no IPV group than each of the three IPV groups (12-month cessation,

6-month cessation, and no-cessation), *ps < .001*. Similarly, mothers' education and family

income was higher in the no severe IPV group than each of the three severe IPV groups (12-

month cessation, 6-month cessation, and no-cessation), *ps < .024*. Child ethnicity differed across

the cessation groups, such that there was a higher proportion of White children who were in the

no IPV group and no severe IPV group, *ps < .001*.

Means and standard deviations for children's externalizing and internalizing problems

across each of the IPV cessation and severe IPV cessation groups are displayed in Table 1. Table

2 summarizes the number of children in each IPV group in shelter and community samples. The

mean externalizing and internalizing problems score across all groups were below the clinical

range (T score ≥ 64; Achenbach, 1991), with 16% and 9% of the children scoring in the clinical

range for externalizing problems and internalizing problems, respectively.

Hypothesis Tests

     IPV cessation and child problems. A MMLM MANCOVA to test for IPV cessation group differences on child externalizing and internalizing problems (mother and child reports), with mother's education, family income, and child ethnicity used as covariates, indicated a group difference; externalizing $F(3, 465) = 6.46$, $p < .001$; internalizing $F(3, 461) = 10.06$, $p < .001$; and the group differences were not moderated by sample type; $ps \geq .060$. Planned comparisons revealed that children in the no IPV group had fewer externalizing problem scores and internalizing problem scores than children in the three IPV groups (12-month cessation, 6-month cessation, no-cessation); externalizing $b = -0.06$, $SE = 0.02$, $t(466) = -3.06$, $p = .002$, $d = -.28$; internalizing $b = -0.08$, $SE = 0.02$, $t(462) = -4.30$, $p < .001$, $d = -.40$. Children in the no-cessation group had higher levels of externalizing problems and internalizing problems than children in the 12-month cessation and 6-month cessation groups; externalizing $b = 0.10$, $SE = 0.03$, $t(465) = 2.79$, $p = .006$, $d = .26$; internalizing $b = 0.09$, $SE = 0.03$, $t(461) = 2.64$, $p = .009$, $d = .25$. However, children in the 12-month cessation group did not differ from those in the 6-month group; externalizing $b = 0.03$, $SE = 0.07$, $t(464) = 0.38$, $p = .705$, $d = .04$; internalizing $b = 0.09$, $SE = 0.03$, $t(460) = 1.56$, $p = .120$, $d = .15$. Results comparing mother and child reports of externalizing and internalizing problems revealed IPV cessation group differences did not vary according to type of report, $ps > .050$.

     A MMLM MANCOVA to test for severe IPV cessation group differences on child externalizing and internalizing problems (mother and child reports), with mother's education, family income, and child ethnicity used as covariates, was moderated by sample type for externalizing problems, $F(3, 490) = 3.79$, $p = .010$, but not internalizing problems, $F(3, 490) = 1.61$, $p = .186$. For externalizing problems, planned multivariate comparisons revealed that

children in the no severe IPV group had less externalizing problems than children in the three

severe IPV groups (12-month cessation, 6-month cessation, no-cessation) in the shelter sample

but not the community sample; community b = -0.02, SE = 0.03, $t(479)$ = -0.83, p = .410, d = -

.08; shelter b = -0.35, SE = 0.10, $t(519)$ = -3.40, p = .001, d = -.30. Children in the no-cessation

group had higher levels of externalizing problems than children in the 12-month cessation and 6-

month cessation groups in both samples; community b = 0.20, SE = 0.07, $t(485)$ = 2.82, p = .005,

d = .26; shelter b = 0.15, SE = 0.07, $t(470)$ = 2.04, p = .042, d = .19. However, children in the 12-

month cessation group did not differ from those in the 6-month group in either sample on

externalizing problems; community b = -0.14, SE = 0.11, $t(476)$ = -1.21, p = .227, d = -.11;

shelter b = 0.15, SE = 0.13, $t(467)$ = 1.15, p = .251, d = .11. Results comparing mother and child

reports of externalizing problems revealed that the interaction between IPV cessation group

differences and sample type did not vary according to type of report (i.e., IPV grouping variable

x sample type x reporter was non-significant); p = .113. For internalizing problems, the overall

omnibus MMLM MANCOVA indicated that there was a group difference, $F(3, 475)$ = 6.38, p <

.001. Planned multivariate comparisons indicated that children in the no severe IPV group had

less internalizing problems than those in the three severe IPV groups, b = -0.09, SE = 0.02,

$t(479)$ = -3.58, p < .001, d = -.33. Children in the no-cessation group had higher levels of

internalizing problems than children in the 12-month cessation and 6-month cessation groups, b

= 0.13, SE = 0.05, $t(476)$ = 2.74, p = .006, d = .25. However, children in the 12-month cessation

group and 6-month cessation group did not differ on internalizing problems, b = 0.08, SE = 0.08,

$t(469)$ = 1.00, p = .318, d = .09. Results comparing mother and child reports of internalizing

problems revealed that IPV cessation group differences varied according to type of report, $F(3,$

$474)$ = 6.42, p < .001. Specifically, planned multivariate comparisons of (1) children in the no

IPV group versus children in the three IPV groups and (2) children in the 12-month cessation group versus children in the 6-month cessation group were significant for internalizing problems as reported by mothers, $ps \leq .001$, but not by children, $ps \geq .083$. Furthermore, multivariate comparisons of children in the no-cessation group versus the 12-month cessation and 6-month cessation groups was significant for internalizing problems as reported by children, $p < .001$, but not by mothers, $p = .560$.

IPV cessation, child problems, and IPV frequency. I repeated the above analyses and included frequency of IPV as an additional covariate. A MMLM MANCOVA to test for IPV cessation group differences on child externalizing and internalizing problems indicated that there was a group difference on child internalizing problems, $F(3, 459) = 3.78$, $p = .011$; but not externalizing $F(3, 463) = 1.82$, $p = .142$; and the group differences were not moderated by sample type; $ps \geq .065$. Planned comparisons revealed that children in the no IPV group had less internalizing problems than children in the three IPV groups, $b = -0.06$, $SE = 0.02$, $t(461) = -3.17$, $p = .002$, $d = -.30$. However, children in the no-cessation group did not differ on internalizing problems from children in the 12-month cessation and 6-month cessation groups; $b = 0.04$, $SE = 0.04$, $t(456) = 1.08$, $p = .279$, $d = .10$, nor did children in the 12-month cessation group differ from children in the 6-month cessation group on internalizing problems, $b = 0.08$, $SE = 0.07$, $t(460) = 1.21$, $p = .228$, $d = .11$. Results comparing mother and child reports of externalizing and internalizing problems revealed that IPV cessation group differences did not vary according to type of report, $ps > .355$.

A MMLM MANCOVA to test for severe IPV cessation group differences on child externalizing and internalizing problems (mother and child reports), with mother's education, family income, and child ethnicity used as covariates, was moderated by sample type for

externalizing problems, $F(3, 488) = 3.33$, $p = .019$, but not internalizing problems, $F(3, 488) =$

1.47, $p = .223$. For externalizing problems, planned multivariate comparisons (see Table 3)

revealed that, after accounting for frequency of IPV, children in the no severe IPV group had less

externalizing problems than children in the three severe IPV groups (12-month cessation, 6-

month cessation, no-cessation) in the shelter sample but not the community sample; community

$b < 0.01$, $SE = 0.03$, $t(477) = 0.03$, $p = .977$, $d < .01$; shelter $b = -0.31$, $SE = 0.11$, $t(514) = -2.91$,

$p = .004$, $d = -.26$. Children in the no-cessation group had higher levels of externalizing problems

than children in the 12-month cessation and 6-month cessation groups in the community sample

but not the shelter sample; community $b = 0.17$, $SE = 0.07$, $t(481) = 2.25$, $p = .025$, $d = .21$;

shelter $b = 0.12$, $SE = 0.08$, $t(466) = 1.52$, $p = .130$, $d = .14$. However, children in the 12-month

cessation group did not differ from those in the 6-month group on externalizing problems in

either sample; community $b = -0.17$, $SE = 0.11$, $t(475) = -1.50$, $p = .135$, $d = -.14$; shelter $b =$

0.09, $SE = 0.13$, $t(465) = 0.69$, $p = .491$, $d = .06$. Results comparing mother and child reports of

child externalizing problems revealed that the interaction between IPV cessation group

differences and sample type did not vary according to type of report (i.e., IPV grouping variable

x sample type x reporter was non-significant); $p = .065$. For internalizing problems, the overall

omnibus MMLM MANCOVA indicated that there was not a group difference, $F(3, 462) = 1.10$,

$p = .294$.

Exploratory Analyses

      Child age as a moderator. Child age did not moderate the relation between IPV

cessation groups and child externalizing, $F(3, 470) = 0.85$, $p = .470$, or internalizing problems,

$F(3, 465) = 1.24$, $p = .294$. Child age also did not moderate the relation between severe IPV

cessation groups and child externalizing, $F(3, 506) = 0.39$, $p = .763$, or internalizing problems,

$F(3, 504) = 1.06$, $p = .364$. Similarly, after accounting for IPV frequency, child age did not moderate the relation between IPV cessation groups and child externalizing, $F(3, 469) = 0.83$, $p = .481$, or internalizing problems, $F(3, 465) = 1.27$, $p = .285$. Child age also did not moderate the relation between severe IPV cessation groups and child problems; externalizing $F(3, 505) = 0.49$, $p = .687$; internalizing $F(3, 502) = 1.11$, $p = .345$.

Controlling for baseline child adjustment problems.

IPV cessation and child problems. I repeated the hypothesis analyses and included mothers' and children's reports of baseline child adjustment (i.e., externalizing or internalizing) problems as additional covariates. A MMLM MANCOVA to test for IPV cessation group differences on child externalizing and internalizing problems, with mother's education, family income, child ethnicity, and baseline child externalizing or internalizing problems, indicated that there was not a group difference on externalizing problems, $F(3, 473) = 1.84$, $p = .139$, but there was a group difference on internalizing problems, $F(3, 459) = 3.60$, $p = .014$. Group differences were not moderated by sample type, $ps \geq .061$. Planned comparisons revealed that children in the no IPV group had less internalizing problems than children in the three IPV groups, $b = -0.03$, $SE = 0.02$, $t(462) = -2.01$, $p = .045$, $d = -.19$. Children in the no-cessation group had more internalizing problems than children in the 12-month cessation and 6-month cessation groups, $b = 0.06$, $SE = 0.03$, $t(457) = 2.14$, $p = .033$, $d = .20$. Children in the 12-month cessation group did not differ from those in the 6-month group, $b = 0.06$, $SE = 0.05$, $t(458) = 1.15$, $p = .250$, $d = .11$. Results comparing mother and child reports of internalizing problems revealed that group differences did not vary by reporter, $p = .410$.

A MMLM MANCOVA to test for severe IPV cessation group differences on child externalizing and internalizing problems (mother and child reports), with mother's education,

family income, child ethnicity, and baseline child externalizing or internalizing problems used as covariates, indicated a group difference on externalizing problems but not internalizing problems; externalizing $F(3, 485) = 4.65$, $p = .003$; internalizing $F(3, 472) = 2.54$, $p = .056$; and results did not vary by sample type, $ps \geq .184$. Results of planned multivariate comparisons revealed that children in the no severe IPV group did not differ from children in the three severe IPV groups on externalizing problem scores, $b = 0.03$, $SE = 0.02$, $t(489) = 1.37$, $p = .171$, $d = .12$. Children in the no-cessation group had higher levels of externalizing problems than children in the 12-month cessation and 6-month cessation groups, $b = 0.12$, $SE = 0.04$, $t(484) = 3.38$, $p = .001$, $d = .31$. Children in the 12-month cessation group did not differ from those in the 6-month group on externalizing problems, $b = -0.07$, $SE = 0.06$, $t(479) = -1.16$, $p = .246$, $d = -.11$. Results comparing mother and child reports of externalizing and internalizing problems revealed that group differences varied by type of reporter, $p = .008$. Specifically, children in the no severe IPV group did not differ from the three severe IPV groups according to either mother and child reports of externalizing problems; mother report $b < 0.01$, $SE = 0.02$, $t(454) = 0.11$, $p = .915$, $d = .01$; child report $b = 0.03$, $SE = 0.03$, $t(407) = 1.07$, $p = .285$, $d = .01$. Children in the no severe cessation group had more externalizing problems than children in the 12-month severe cessation group and the 6-month severe cessation group according to both mother and child reports; mother report $b = 0.12$, $SE = 0.04$, $t(411) = 2.88$, $p = .004$, $d = .28$; child report $b = 0.13$, $SE = 0.06$, $t(373) = 2.04$, $p = .042$, $d = .21$. Children in the 12-month severe cessation group had more externalizing problems than the 6-month severe cessation group according to mothers' report but not children's report; mother report $b = -0.17$, $SE = 0.07$, $t(413) = -2.35$, $p = .019$, $d = -.23$; child report $b = 0.17$, $SE = 0.11$, $t(374) = 1.59$, $p = .113$, $d = .16$.

IPV cessation, child problems, and IPV frequency. When frequency of IPV was

included as an additional covariate, a MMLM MANCOVA to test for IPV cessation group

differences on child externalizing and internalizing problems indicated that there was not a group

difference after accounting for baseline child externalizing and internalizing problems;

externalizing $F(3, 471) = 0.95$, $p = .417$; internalizing $F(3, 457) = 1.40$, $p = .243$; and these

findings were not moderated by sample type, $ps \geq .063$.

A MMLM MANCOVA to test for severe IPV cessation group differences on child

externalizing and internalizing problems (mother and child reports), with mother's education,

family income, child ethnicity, and baseline child externalizing and internalizing problems used

as covariates, indicated a group difference on externalizing problems, but not on internalizing

problems; externalizing $F(3, 481) = 4.78$, $p = .003$; internalizing $F(3, 468) = 1.59$, $p = .192$; and

the group differences were not moderated by sample type; $ps \geq .215$. Results of planned

multivariate comparisons for externalizing problems revealed that children in the no severe IPV

group did not differ from children in the three severe IPV groups on externalizing problem

scores, $b = 0.04$, $SE = 0.02$, $t(485) = 1.81$, $p = .072$, $d = .16$. Children in the no-cessation group

had higher levels of externalizing problems than children in the 12-month cessation and 6-month

cessation groups, $b = 0.11$, $SE = 0.04$, $t(479) = 2.61$, $p = .009$, $d = .24$. Children in the 12-month

cessation group did not differ from those in the 6-month group on externalizing problems, $b = -$

0.09, $SE = 0.06$, $t(478) = -1.52$, $p = .129$, $d = -.14$. Results comparing mother and child reports of

externalizing and internalizing problems revealed that group differences varied according to type

of reporter, $p = .010$. Specifically, children in the no severe IPV group did not differ from

children in the three severe IPV groups on externalizing problems as reported by either mothers

or children; mother report $b = 0.02$, $SE = 0.02$, $t(537) = 1.05$, $p = .293$, $d = .09$; child report $b =$

0.05, $SE = 0.03$, $t(526) = 1.72$, $p = .085$, $d = .15$. However, children in the no-cessation group

had more externalizing problems than children in the cessation groups (12-month, 6-month)

according to mother report but not child report of externalizing problems; mother report $b = 0.10$,

$SE = 0.05$, $t(464) = 2.13$, $p = .033$, $d = .20$; child report $b = 0.10$, $SE = 0.07$, $t(411) = 1.54$, $p =$

.124, $d = .15$. Children in the 12-month severe cessation group have more externalizing problems

than children in the 6-month severe cessation group as reported by mothers, but not children;

mother report $b = -0.20$, $SE = 0.07$, $t(434) = -2.75$, $p = .006$, $d = -.26$; child report $b = 0.14$, $SE =$

0.11, $t(390) = 1.25$, $p = .213$, $d = .13$.

Discussion

Overall, this study replicated previous findings that children exposed to IPV have more

adjustment problems than children not exposed to IPV. I also examined whether the cessation of

IPV predicted lower levels of child adjustment problems. The findings suggest that cessation

patterns of IPV contribute to our understanding of child externalizing and internalizing problems.

As hypothesized, children exposed to IPV without periods of cessation have more externalizing

and internalizing problems than children who experienced some cessation of IPV. This pattern of

findings was present when considering cessation of any violence as well as when considering

cessation of severe violence. Furthermore, after accounting for frequency of IPV, cessation

patterns of severe IPV related to child externalizing problems. Contrary to my hypothesis,

cessation of any IPV did not relate to child adjustment problems after accounting for IPV

frequency. After accounting for baseline child externalizing problems, cessation patterns of

severe IPV related to child externalizing problems, but not internalizing problems. Child age did

not moderate any of my findings.

My findings were consistent with those from the child maltreatment literature that indicate that children exhibit more psychological distress and behavior problems when exposed to maltreatment that extends over multiple periods or that are characterized by fewer cessation periods (English et al., 2005; Graham et al., 2010; Manly et al., 1994). This study explored cessation of IPV as a dimension of IPV, and the present findings suggest that cessation of IPV is important to consider. This is noteworthy given that previous research on children's exposure to IPV have focused primarily on conceptualizing IPV by its severity or by the frequency with which it occurs; however, the present findings suggest that the continuity of IPV may uniquely contribute to the development of child adjustment problems, such that children who are exposed to chronic IPV may become sensitized over time to the violence.

After accounting for baseline child adjustment problems and frequency of IPV, cessation of IPV as defined by severe IPV predicted fewer child externalizing problems. Social learning theory (Bandura, 1973; Bandura, 1978) is commonly used to explain how parents' use of physical IPV may place children at risk for developing externalizing problems (e.g., Ireland & Smith, 2009; Morretti, Obsuth, Odgers, & Reebye, 2006; Temple, Shorey, Tortolero, Wolfe, & Stuart, 2013). Specifically, children may learn to behave in ways that are consistent with their parents' behaviors. In context of cessation of IPV, children who are exposed to IPV that ceases may be less likely to form long-lasting schemas specific to their parents' violent behaviors given that other non-violent behaviors (i.e., during periods of cessation) are also observed. As a result, children may also be more likely to develop an adaptive behavioral repertoire despite exposure to IPV.

My findings suggest that cessation of *severe* IPV, as opposed to any IPV, may be an important factor that contributes to the heterogeneity in child adjustment problems following IPV

exposure, over and above frequency of IPV alone. Although this study was not designed to

explain why cessation of severe IPV contributes to child externalizing and internalizing

problems, a few hypotheses can be offered. First, the presence of persistent, severe IPV may be a

proxy for damaging partner dynamics that are markedly different from those in which IPV is

more often less severe and sporadic (Aldarondo, 1996; Crowne et al., 2012; Johnson, 2003).

According to Johnson (1995), such persistent, severe IPV is common among a pattern of

violence labeled patriarchal or intimate terrorism. In this type of pattern, relationships are

characterized by emotional abuse, intimidation, and control tactics, and partners who consistently

use severe IPV may be more likely to exhibit this pattern of intimate terrorism. Therefore,

periods of cessation of severe IPV may be important because they may signify to children

opportunities for relief from, or a possible permanent end to, not only physical IPV, but also

other damaging partner dynamics that are not accounted for by frequency of IPV and that are

related to negative child adjustment outcomes (Haselschwerdt, 2014; Jouriles & McDonald,

2015). Furthermore, this differs from examining cessation of any IPV, which may be more likely

to capture cessation of common couple violence. Common couple violence is theorized to take

place when conflict between couples occasionally escalate to violence, and children may not

perceive cessation of common couple violence as meaningful if such violence is deemed less

common and more unusual to typical couple conflict behaviors.

I did not find that children differed on child adjustment problems when exposed to

different levels of IPV cessation, such that children who experienced longer periods of cessation

exhibited similar levels of child adjustment problems compared to those who experienced shorter

periods of cessation. There is one exception to this pattern, in which children from the 12-month

cessation of severe IPV had more externalizing problems than children in the 6-month cessation

of severe IPV after accounting for frequency of IPV and baseline child externalizing problems. However, given that this finding was only present for mother's reports and not children's reports, and given that no other differences according to levels of IPV cessation were found, additional research needs to be done. Overall, it is also possible that measuring cessation of IPV across increments of six months may not accurately capture a "meaningful" period of cessation. Specifically, the threshold at which most children may perceive IPV as temporary, as opposed to persistent, may occur at periods less than or more than six months. Additional research is needed in determining the optimal timeframe between multiple assessments to better understand how long IPV must not have occurred for to better understand the impact of IPV cessation on child adjustment problems.

Of note, while most of my findings replicated previous work indicating that children exposed to IPV have more externalizing and internalizing problems than children not exposed to IPV, this replication was generally not replicated when I controlled for baseline child adjustment problems. However, this pattern of finding is not surprising, such that children's externalizing and internalizing problems would not be expected to change across assessments for children who were not exposed to IPV across assessments.

This study has a number of strengths, including the inclusion of three waves of IPV and the use of mother and child reports of children's externalizing and internalizing problems. However, several limitations should also be noted. First, while I accounted for IPV frequency and some demographic variables, other unmeasured variables may have accounted for relations between IPV cessation groups and child adjustment problems. For example, cessation of IPV may impact mother's psychological wellbeing and parenting, which are related to child adjustment problems (Gewirtz, DeGarmo, & Medhanie, 2011; Zarling et al., 2013). Second, this

study covers an 18-month period across three assessments; however, this timeframe and number

of assessments may not be sufficient to determine IPV cessation patterns. Some studies that have

examined the effects of cessation of child maltreatment, for example, have examined multiple

assessments spanning multiple developmental periods up to 9 years (e.g., English et al., 2005).

Third, as mentioned previously, cessation was conceptualized as IPV that did not occur within a

6-month timeframe; however, this timeframe may not be a meaningful or optimal timeframe to

use, particularly if children have a much lower threshold for determining when violence might be

deemed temporary. Lastly, the effect sizes for most of the significant effects were small in

magnitude. However, given that appropriate methods of computing effect sizes in MLM models

remains controversial (Feingold 2013; 2015), the interpretation of the obtained effect sizes

remains unclear.

Clinically, this research might be interpreted to suggest that children in families in which

the IPV is characterized as sporadic or less persistent may be more likely to exhibit resilience

following IPV exposure and therefore more responsive to clinical interventions designed to help

exposed children. However, additional research needs to be done to determine why and how such

resilience is fostered to better inform clinical work. For example, children exposed to sporadic

violence may fare better simply because the nature of the violence differs from that of children

exposed to persistent IPV. Regardless of the nature of the violence, all children may benefit

similarly from periods of violence cessation (i.e., provides them all with periods of recovery),

and clinical interventions are tailored toward addressing children's level of externalizing or

internalizing problems regardless of characteristics specific to children's exposure to IPV.

However, while clinicians emphasize minimizing and preventing children's exposure to future

IPV once children have already been exposed to IPV, previous studies have not examined

whether stopping IPV following exposure can have benefit children's adjustment. The findings

from this study suggest that stopping future IPV does indeed lead to improvements in child

adjustment problems, particularly with externalizing problems.

In conclusion, this study is an initial evaluation of the utility of cessation of IPV in

predicting children's risk for developing externalizing and internalizing problems. The findings

suggest that consideration of cessation patterns of severe IPV can contribute to a more

comprehensive understanding of the link between IPV and child problems, such that children

exhibit more externalizing and internalizing problems when exposed to persistent IPV as

opposed to IPV characterized by periods of cessation.

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Table 1

Means and Standard Deviations Across IPV Cessation Groups

	IPV Cessation Groups (any IPV)				IPV Severe Cessation Groups			
Variable	*No IPV (n = 245)*	*12-month cessation (n = 80)*	*6-month cessation (n = 56)*	*No cessation (n = 121)*	*No severe IPV (n = 366)*	*12-month cessation (n = 69)*	*6-month cessation (n = 35)*	*No cessation (n = 45)*
Externalizing problems								
Mom report	50.65 (9.90)	53.36 (10.31)	52.50 (11.73)	55.69 (10.92)	51.23 (10.20)	54.14 (10.75)	50.63 (13.24)	58.36 (11.03)
Child report	1.91 (2.82)	2.23 (2.74)	2.38 (3.01)	3.39 (3.61)	2.12 (3.01)	1.67 (2.35)	2.53 (3.04)	3.88 (3.12)
Internalizing problems								
Mom report	49.73 (9.50)	51.14 (9.05)	50.84 (9.96)	53.73 (9.72)	50.27 (9.52)	51.52 (9.36)	48.20 (9.82)	56.43 (9.68)
Child report	7.27 (6.13)	8.31 (7.16)	10.64 (7.46)	10.69 (7.15)	7.61 (6.37)	8.25 (7.38)	12.97 (6.80)	11.76 (7.08)

Table 2

Number of Shelter and Community Individuals Across IPV Cessation Groups

Variable	Community sample n (%)	Shelter sample n (%)
Cessation of any IPV groups	N = 417	N = 85
No IPV	245 (59%)	0 (0%)
12-month cessation	58 (14%)	22 (26%)
6-month cessation	42 (10%)	14 (16%)
No cessation	72 (17%)	49 (58%)
Cessation of severe IPV groups	N = 436	N = 79
No severe IPV	362 (83%)	4 (5%)
12-month cessation	39 (9%)	30 (38%)
6-month cessation	17 (4%)	18 (23%)
No cessation	18 (4%)	27 (34%)

Note. Because the study focuses on cessation patterns, the following study participants who fit one of the following violence patterns were excluded from analyses: 1) no violence at baseline, violence at 6-month follow-up, no violence at 12-month follow up, 2) no violence at baseline, violence at 6-month and 12-month follow-ups, and 3) violence at baseline, no violence at 6-month follow-up, violence at 12-month follow-up. Up to 34 shelter participants and 122 community participants were excluded from analyses.

Appendix A

Analysis Plan 2

Hypothesis Analyses

I conducted a factorial MANOVA model to evaluate the hypothesis that child

internalizing and externalizing problems will differ according to the presence of IPV at each of

the three assessments. Specifically, a 2 (Time 1 IPV or no IPV) x 2 (Time 2 IPV or no IPV) x 2

(Time 3 IPV or no IPV) was examined as predictors of child internalizing and externalizing

problems at the third assessment. MANOVA allows for analyzing multiple dependent variables

in one model (i.e., mother and child reports of internalizing problems in one model, and mother

and child reports of externalizing problems in a second model). A significant three-way

interaction of Time 1 IPV, Time 2 IPV, and Time 3 IPV predictors on child internalizing and

externalizing problems was followed up with a priori comparisons between 1) presence of IPV at

all three assessments versus combinations that indicate 6 months of IPV cessation (e.g., Time 1

IPV, Time 2 no IPV, and Time 3 IPV; Time 1 IPV, Time 2 IPV, and Time 3 no IPV), 2)

presence of IPV at all three assessments versus 12 months of IPV cessation (i.e., Time 1 IPV,

Time 2 no IPV, Time 3 no IPV) 3) 6-month cessation variations versus no IPV at all three

assessments, 4) 12-month cessation versus no IPV at all three assessments. These analyses were

repeated twice, once with any IPV, and once with severe IPV.

To evaluate the hypothesis that child internalizing and externalizing problems at the third

assessment will differ between the three IPV persistence groups over and above frequency of

IPV, the above models were repeated with frequency of IPV, as reported by mothers and

children, as a covariate. A significant three-way interaction effect on child internalizing and

externalizing problems after accounting for IPV frequency was followed up with a priori

comparisons between 1) presence of IPV at all three assessments versus combinations that

indicate 6 months of IPV cessation (e.g., Time 1 IPV, Time 2 no IPV, and Time 3 IPV; Time 1

IPV, Time 2 IPV, and Time 3 no IPV), 2) presence of IPV at all three assessments versus 12

months of IPV cessation (i.e., Time 1 IPV, Time 2 no IPV, Time 3 no IPV) 3) 6-month cessation

variations versus no IPV at all three assessments, 4) 12-month cessation versus no IPV at all

three assessments.

Exploratory Analyses

To explore whether child age (i.e., younger or older) moderates the relation between the

presence of IPV at each assessment and child internalizing and externalizing problems, child age

was added as a fourth independent variable. A significant four-way interaction effect on child

internalizing and externalizing problems was followed up with previously described a priori

comparisons, once with child age centered at -1.0 standard deviation below the child age mean

and again with child age centered at +1.0 standard deviation above the child age mean.

<div align="center">

Results

</div>

Hypothesis Tests

A 2 (Time 1 IPV or no IPV) x 2 (Time 2 IPV or no IPV) x 2 (Time 3 IPV or no IPV)

factorial MANOVA to test for group differences on child externalizing and internalizing

problems according to the presence of IPV at each assessment indicated that a three-way

interaction was not present for externalizing problems, Wilk's $\Lambda = .99$, $F(2, 543) = 1.19$, $p = $

.306, partial $\eta^2 < .01$, nor internalizing problems, Wilk's $\Lambda = .99$, $F(2, 543) = 0.49$, $p = .614$,

partial $\eta^2 < .01$.

The 2 (Time 1 IPV or no IPV) x 2 (Time 2 IPV or no IPV) x 2 (Time 3 IPV or no IPV)

factorial MANOVA was repeated with the inclusion of IPV frequency as a covariate to test for

group differences on child externalizing and internalizing problems, after accounting for IPV frequency. Results indicated that a three-way interaction was not present for externalizing problems, Wilk's $\Lambda = .99$, $F(2, 531) = 0.29$, $p = .287$, partial $\eta^2 < .01$, nor internalizing problems, Wilk's $\Lambda = .99$, $F(2, 531) = 0.33$, $p = .722$, partial $\eta^2 < .01$.

A 2 (Time 1 severe IPV or no severe IPV) x 2 (Time 2 severe IPV or no severe IPV) x 2 (Time 3 severe IPV or no severe IPV) factorial MANOVA to test for group differences on child externalizing and internalizing problems according to the presence of severe IPV at each assessment indicated that a three-way interaction was not present for externalizing problems, Wilk's $\Lambda = .99$, $F(2, 543) = 0.55$, $p = .578$, partial $\eta^2 < .01$, nor internalizing problems, Wilk's $\Lambda = .99$, $F(2, 543) = 1.62$, $p = .199$, partial $\eta^2 = .01$.

The 2 (Time 1 severe IPV or no severe IPV) x 2 (Time 2 severe IPV or no severe IPV) x 2 (Time 3 severe IPV or no severe IPV) factorial MANOVA was repeated with the inclusion of IPV frequency as a covariate to test for group differences on child externalizing and internalizing problems, after accounting for IPV frequency. Results indicated that a three-way interaction was not present for externalizing problems, Wilk's $\Lambda = .99$, $F(2, 531) = 0.88$, $p = .417$, partial $\eta^2 < .01$, nor internalizing problems, Wilk's $\Lambda = .99$, $F(2, 531) = 1.71$, $p = .182$, partial $\eta^2 = .01$.

Exploratory Analyses

Child age was added into the above tested models as a potential moderator. Child age did not moderate the relation between the presence of IPV at each assessment and child internalizing and externalizing problems for externalizing problems, Wilk's $\Lambda = .99$, $F(2, 535) = 0.46$, $p = .634$, partial $\eta^2 < .01$, nor internalizing problems, Wilk's $\Lambda = .99$, $F(2, 535) = 0.05$, $p = .952$, partial $\eta^2 < .01$.

After accounting for IPV frequency, child age did not moderate the relation between the presence of IPV at each assessment and child internalizing and externalizing problems for externalizing problems, Wilk's $\Lambda = .99$, $F(2, 523) = 0.37$, $p = .692$, partial $\eta^2 < .01$, nor internalizing problems, Wilk's $\Lambda = .99$, $F(2, 523) = 0.11$, $p = .892$, partial $\eta^2 < .01$.

Child age did not moderate the relation between the presence of severe IPV at each assessment and child internalizing and externalizing problems for externalizing problems, Wilk's $\Lambda = .99$, $F(2, 535) = 0.60$, $p = .551$, partial $\eta^2 < .01$, nor internalizing problems, Wilk's $\Lambda = .99$, $F(2, 535) = 0.60$, $p = .549$, partial $\eta^2 < .01$.

After accounting for IPV frequency, child age did not moderate the relation between the presence of severe IPV at each assessment and child internalizing and externalizing problems for externalizing problems, Wilk's $\Lambda = .99$, $F(2, 523) = 0.88$, $p = .415$, partial $\eta^2 < .01$, nor internalizing problems, Wilk's $\Lambda = .99$, $F(2, 523) = 0.73$, $p = .481$, partial $\eta^2 < .01$.

Appendix B

Analysis Plan 3

Hypothesis Analyses

I conducted cross-lag multilevel modeling (MLM) to evaluate the hypothesis that

cessation in IPV will predict child internalizing and externalizing problems over two 6-month

intervals. These analyses modeled child adjustment problems at assessment j as a function of 1)

the presence of IPV at the prior assessment j-1, 2) the presence of IPV at assessment j, and 3) the

interaction between the presence of IPV at the prior assessment j-1 and the presence of IPV at

assessment j. Child adjustment problems at assessment j-1 were included as a control variable.

This model examined the cross-lag relation between persistence of IPV across two 6-month

intervals on child adjustment problems over time. If there is a significant interaction between the

presence of IPV at the prior assessment and the presence of IPV at assessment j, my hypothesis

will be supported if the presence of IPV at assessment j-1 and the presence of IPV at assessment

j relate positively to child adjustment problems over time. These models were repeated twice,

once using the persistence of any IPV grouping variable, and once using the cessation of severe

IPV grouping variable.

To evaluate the hypothesis that cessation in IPV will predict child internalizing and

externalizing problems over two 6-month intervals over and above frequency of IPV, the above

models were repeated with frequency of IPV, as reported by mothers and children, at assessment

j-1 as a control variable.

Exploratory Analyses

To explore whether child age moderates hypothesized relations, a three-way interaction (child age x presence of IPV at assessment j-1 x presence of IPV at assessment j) was added to models used in hypothesis analyses.

Results

Hypothesis Tests

IPV and child adjustment problems. In cross-lag analyses predicting child adjustment problems, results indicated that the interaction between the presence of any IPV at the prior assessment and the presence of any IPV at assessment j, controlling for previous levels of child adjustment problems, were not significant for mothers' report of externalizing problems, $b = 0.35$, $t(909) = 0.44$, $p = .661$, children's report of externalizing problems, $b = 0.03$, $t(909) = 0.09$, $p = .929$, mothers' report of internalizing problems, $b = 0.18$, $t(958) = 0.21$, $p = .834$, or children's report of internalizing problems, $b = 0.08$, $t(969) = 0.11$, $p = .912$.

In cross-lag analyses predicting child adjustment problems, results indicated that the interaction between the presence of severe IPV at the prior assessment and the presence of severe IPV at assessment j, controlling for previous levels of child adjustment problems, were not significant for mothers' report of externalizing problems, $b = 0.39$, $t(917) = 0.44$, $p = .663$, children's report of externalizing problems, $b = -0.12$, $t(905) = -0.31$, $p = .758$, mothers' report of internalizing problems, $b = -0.35$, $t(967) = -0.35$, $p = .723$, or children's report of internalizing problems, $b = 0.29$, $t(971) = 0.36$, $p = .717$.

IPV and child adjustment problems after accounting for IPV frequency. In cross-lag analyses predicting child adjustment problems while accounting for IPV frequency, results indicated that the interaction between the presence of any IPV at the prior assessment and the presence of any IPV at assessment j, controlling for previous levels of child adjustment

problems, were not significant for mothers' report of externalizing problems, $b = 0.39$, $t(913) =$ 0.48, $p = .630$, children's report of externalizing problems, $b < -0.01$, $t(908) = -0.01$, $p = .989$, mothers' report of internalizing problems, $b = 0.25$, $t(963) = 0.28$, $p = .779$, or children's report of internalizing problems, $b = -0.23$, $t(978) = -0.32$, $p = .749$.

In cross-lag analyses predicting child adjustment problems while accounting for IPV frequency, results indicated that the interaction between the presence of severe IPV at the prior assessment and the presence of severe IPV at assessment j, controlling for previous levels of child adjustment problems, were not significant for mothers' report of externalizing problems, $b = 0.24$, $t(920) = 0.27$, $p = .791$, children's report of externalizing problems, $b = -0.12$, $t(902) = -0.29$, $p = .774$, mothers' report of internalizing problems, $b = -0.49$, $t(970) = -0.48$, $p = .629$, or children's report of internalizing problems, $b = 0.15$, $t(978) = 0.18$, $p = .859$.

Exploratory Analyses

Child age as moderator.

IPV and child adjustment problems. In cross-lag analyses predicting child adjustment problems, results indicated that the three-way interaction between the presence of any IPV at the prior assessment, the presence of any IPV at assessment j, and child age, controlling for previous levels of child adjustment problems, were not significant for mothers' report of externalizing problems, $b = -0.61$, $t(918) = -0.95$, $p = .343$, children's report of externalizing problems, $b = 0.22$, $t(928) = 0.77$, $p = .443$, mothers' report of internalizing problems, $b = -0.53$, $t(975) = -0.74$, $p = .460$, or children's report of internalizing problems, $b = -0.47$, $t(986) = -0.82$, $p = .415$.

In cross-lag analyses predicting child adjustment problems, results indicated that the three-way interaction between the presence of severe IPV at the prior assessment, the presence of severe IPV at assessment j, and child age, controlling for previous levels of child adjustment

problems, were not significant for mothers' report of externalizing problems, $b = 0.54$, $t(1002) =$ 0.69, $p = .489$, children's report of externalizing problems, $b = 0.13$, $t(994) = 0.38$, $p = .703$, mothers' report of internalizing problems, $b = 0.36$, $t(1067) = 0.42$, $p = .674$, or children's report of internalizing problems, $b = -0.54$, $t(1059) = 0.66$, $p = .545$.

IPV and child adjustment problems after accounting for IPV frequency. In cross-lag analyses predicting child adjustment problems while accounting for IPV frequency, results indicated that the three-way interaction between the presence of any IPV at the prior assessment, the presence of any IPV at assessment j, child age, controlling for previous levels of child adjustment problems, were not significant for mothers' report of externalizing problems, $b = -$ 0.62, $t(915) = -0.96$, $p = .339$, children's report of externalizing problems, $b = 0.23$, $t(907) =$ 0.80, $p = .425$, mothers' report of internalizing problems, $b = -0.51$, $t(971) = -0.72$, $p = .474$, or children's report of internalizing problems, $b = -0.55$, $t(976) = -0.94$, $p = .346$.

In cross-lag analyses predicting child adjustment problems while accounting for IPV frequency, results indicated that the three-way interaction between the presence of severe IPV at the prior assessment, the presence of severe IPV at assessment j, and child age, controlling for previous levels of child adjustment problems, were not significant for mothers' report of externalizing problems, $b = 0.49$, $t(1004) = 0.62$, $p = .536$, children's report of externalizing problems, $b = 0.13$, $t(998) = 0.38$, $p = .707$, mothers' report of internalizing problems, $b = 0.33$, $t(1068) = 0.38$, $p = .705$, or children's report of internalizing problems, $b = -0.51$, $t(1061) = 0.43$, $p = .824$.