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Can a Parenting Intervention to Prevent Early Conduct Problems Interrupt Girls' Risk for Intimate Partner Violence 10 Years Later?

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Abstract

This study tests whether a parenting intervention for families of preschoolers at risk for conduct problems can prevent later risk for intimate partner violence (IPV). Ninety-nine preschoolers at familial risk for conduct problems were randomly assigned to intervention or control conditions. Ten years later, 45 preschoolers and 43 of their siblings completed an assessment of their romantic relationships, including measures of physical and psychological IPV. The study focuses on the 54 females, including targets ($n = 27$) and siblings ($n = 27$) who participated in a 10-year follow-up (M age = 16.5, $SD = 5.2$, range = 10–28). Using an intent-to-treat (ITT) design, multivariate regressions suggest that females from families randomly assigned to intervention in early childhood scored lower than those in the control condition on perceptions of dating violence as normative, beliefs about IPV prevalence, exposure to IPV in their own peer group, and expected sanction behaviors for IPV perpetration and victimization. Findings suggest that early parenting intervention may reduce association of high-risk females with aggressive peers and partners in adolescence.

Keywords

Intimate partner violence; Conduct problems; Prevention; Adolescent; Behavior problems

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Conflicts of Interest The authors declare that they have no conflict of interest.

Compliance with Ethical Standards

Informed Consent Informed consent was obtained from all individual participants included in the study.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Intimate partner violence (IPV) is a significant public health problem, with severe physical partner violence experienced by over 5 million individuals in the USA each year (Breiding 2014). Associated injuries are concentrated in adolescent girls and young women (US Department of Justice 2000). IPV is predictive of serious mental health consequences, particularly for young women, including depressive, anxiety disorders, and substance dependence disorders (Ehrensaft et al. 2006; Exner-Cortens et al. 2013).

IPV is not only experienced by adults. In a nationally representative sample, 21% of high school girls and 10% of boys who had dated in the past 12 months reported physical and/or sexual violence from a dating partner (Vagi et al. 2015). This number is likely to be considerably higher in youth living in low-income, high-crime environments (Bonomi et al. 2014). Adolescent dating violence persists over time (Caetano et al. 2005; Whitaker et al. 2010) and is associated with multiple public health consequences, including substance abuse, unhealthy weight control behaviors, sexual risk behavior, pregnancy, and suicidal behaviors (Exner-Cortens et al. 2013; Silverman et al. 2001).

Not all young women are at equal risk for IPV. Early risky family processes, including family violence and harsh parent-child interactions, disrupt the development of self-regulation and reinforce hostile interpersonal interactions (Repetti et al. 2002), thereby increasing risk for childhood conduct problems (Moffitt et al. 2001). In turn, early conduct problems lead to affiliation with deviant peers (Patterson et al. 1984), who reinforce aggressive behavior, and increase the risk for involvement in adolescent dating violence (Morris et al. 2015; Vezina et al. 2011). Prospective longitudinal studies of children followed into early adulthood distinguish child and adolescent conduct problems as among the most robust risk factors for selecting antisocial partners, and for victimization and perpetration of IPV (Chamberlain and Moore 2002; Ehrensaft 2005; Ehrensaft et al. 2003; Ehrensaft et al. 2004; Capaldi and Crosby 1997; Magdol et al. 1998). With girls and young women most likely to suffer adverse consequences of IPV (US Department of Justice 2000), early interruption of trajectories of antisocial behavior may be key to preventing high-risk girls' involvement with violent partners.

Existing IPV prevention programs are largely delivered in school-based formats (see Whitaker et al. 2013 for review). However, there is no evidence that such universal interventions typically delivered in middle or high school are in fact changing trajectories of risk for the most vulnerable youth (Avery-Leaf and Cascardi 2002), namely, girls with a constellation of family and community violence exposure (Ehrensaft et al. 2003; Wolfe et al. 2003), early conduct problems (Ehrensaft et al. 2003, 2004), and selective affiliation with deviant peers.

A pressing and as-yet untested theoretical question is whether an empirically validated parenting intervention to prevent conduct problems in early childhood could also have the long-term effect of preventing IPV involvement (perpetration and/or victimization) and related adverse relationship behaviors in high-risk youth. Models such as the Incredible Years program teach parents to reduce harsh, coercive parent-child interactions and increase warm, consistent practices, thereby modeling social competence and self-regulation

(Webster-Stratton et al. 1989; Webster-Stratton and Taylor 2001). Cascade models of developmental processes suggest that early behavior change may affect “snowballing,” “amplification,” and transactional and progressive influences on subsequent risk across the life span (Masten and Cicchetti 2010; Masten et al. 2005). In these models, early interventions may have small initial effects on child behavior, but may lead to subsequent transactional family process changes, which in turn amplify the intervention effects on child behavior at later developmental points (Wolchik et al. 2007; Patterson et al. 2010). For instance, changes in harsh discipline practices in early childhood are continuously predictive of later changes in monitoring of adolescent behavior, thereby reducing risk for adolescent antisocial behavior (Dodge et al. 2010).

Sandler et al.’s (2011) review of long-term follow-up studies of randomized controlled prevention trials concludes that there is substantial evidence from numerous independent investigators of mediational pathways between parenting and child outcomes supporting this step of the developmental cascade. Parenting mediated intervention effects have been found on adolescent internalizing and externalizing problems (Zhou et al. 2008), conduct problems (Brody et al. 2008), delinquency (DeGarmo and Forgatch 2005; Forgatch et al. 2009), academic success (Spath et al. 2008; Zhou et al. 2008), and substance use (Dishion et al. 2003; Prado et al. 2007; Pantin et al. 2009). Similarly, longitudinal research identifies harsh, low-warmth, punitive parenting practices and coercive parent-child and sibling interactions (Ehrensaft et al. 2003, 2004; Shaw et al. 2006; Webster-Stratton and Taylor 2001) as potential modifiable risks for both conduct problems and IPV.

For high-risk youth, it is reasonable to hypothesize that an early intervention with demonstrated effects on parenting practices and early conduct problems may in turn interrupt the developmental trajectory of risk for IPV. With few exceptions (Foshee et al. 2012, 2015; Foshee et al. 2016), most programs for IPV have effectively left families out of the equation, and have been delivered exclusively to adolescents. This study thus examined long-term risk for IPV among girls at high risk for conduct problems who participated in a randomized controlled trial of an adapted version of the Incredible Years Series. Brotman and colleagues (Brotman, Gouley et al. 2005; Brotman et al. 2008) reported intervention effects on parenting practices, early conduct problems, and social competence in a preschool aged sample of siblings of adjudicated youth. They also demonstrated that intervention-induced parenting practices mediated child outcomes (Brotman et al. 2009), and that intervention effects generalized to the older *siblings* of these preschoolers (Brotman, Dawson-McClure et al. 2005), including lower parent and teacher ratings of antisocial behavior and parent ratings of positive peer relationships. These findings suggest that improvements in parenting and the family environment impact the behaviors and interactions of both the targeted child and of at-risk, but non-targeted, family members.

Brotman and colleagues continued to follow their sample through early adolescence to examine long-term impact in other domains (e.g., obesity, nutrition, physical activity; Brotman et al. 2012), making it possible to explore the question of whether early intervention for high-risk youth could lead to reduced risk for IPV in the targeted children and their older siblings. Here, we followed up this original sample of preschoolers and their older siblings living at home at the time of the intervention, conducting family interviews on

the youth's romantic relationship development and IPV involvement 10 years after the initial intervention. We assessed actual IPV behavior (perpetration and victimization), as well as violence-supportive beliefs about IPV, and expected consequences of IPV, as these are known proximal risks for IPV (Avery-Leaf and Cascardi 2002; Foshee et al. 2015). We hypothesized that, relative to controls, preschool girls and their older female siblings randomized to the parenting intervention would be at lower risk for IPV and associated perceptual belief systems about IPV in adolescence or young adulthood.

Method

Sample and Procedures

Original Study Sample and Procedures—Participants were drawn from a sample of preschool aged children (2.9 to 5.3 years) who were younger siblings of adjudicated youth (i.e., found guilty of a juvenile crime); these preschoolers participated with their caregivers in a randomized controlled trial of a family-centered preventive intervention (Brotman, Gouley et al. 2005; Brotman et al. 2008). The prevention program, an adaptation of the Incredible Years Series (Webster-Stratton et al. 1989), was designed to improve parenting practices and preschoolers' social competence, with the goal of preventing later conduct problems. The program included 22 weekly 2-h group sessions for parents and preschoolers, 10 biweekly home visits, and up to six additional family visits provided over a 6- to 8-month period (see Brotman, Gouley et al. 2005 for more information).

Families were identified through a family court system to yield families with preschoolers who had an adolescent sibling recently adjudicated for a delinquent act. This approach resulted in a well-defined target population and a sample of preschoolers not yet exhibiting high rates of clinically significant behavior problems, but with multiple well-validated sociocultural, parenting, and child risk factors for conduct problems (Brotman et al. 2004). Five cohorts of families were enrolled in the original trial over 5 years from 1997 to 2001. Families were randomized to one of two conditions after baseline assessments were completed in each cohort. Forty-seven families (50 preschoolers) were randomized to intervention and 45 families (49 preschoolers) to the no-treatment control condition. The full sample included 92 families with 99 preschoolers (seven families had two children enrolled in the study) identified via 90 adjudicated youth (four families were identified via two adjudicated youths).

Fifty-three percent of preschoolers were girls; 65% were African American, 27% Latino, and 8% other or mixed race/ethnicity. The mean age at study entry was 3.94 years ($SD = 0.69$). Eighty-three percent of caregivers ("parents"), with a mean age of 36.3 years ($SD = 9.2$), were the children's biological mothers, 2% biological fathers, 10% grandmothers, and 5% adoptive mothers or other female relatives. Over half (59%) of families had household incomes under \$15,000, 45% of parents had not completed high school, and 66% were not employed. One third of parents had a mood or anxiety disorder based on clinical interview at the time of enrollment (or baseline), and 22% had a history of conduct disorder or antisocial personality disorder. Target children had low school readiness, characterized by below-average child IQ score ($M = 83.2$, $SD = 12.9$), and 43% of children were not enrolled in preschool or child care (although all were eligible for Head Start based on income). Almost

half of children (45%) were exposed to substances in utero; 42% were exposed to tobacco (see Brotman et al. 2004, 2005 for details).

Intervention resulted in improved parenting practices and child social competence and lower rates of child conduct problems in early childhood in targeted preschoolers (Brotman, Dawson-McClure et al. 2005; Brotman et al. 2008; Brotman et al. 2009). Due to differential attrition among boys, but not girls at post-intervention, a follow-up with the sample focusing on physical health and health behavior was limited to girls (Brotman et al. 2012). Similarly, the current study sample was limited to girls and thus limits its consideration of risk for IPV to girls.

Current Study Sample and Procedures—The preschoolers and their families were re-contacted for follow-up interview in 2008–2009, when they were between 9 and 16 years old. In addition, older siblings who were originally aged 5 to 17 and were living in the home at the time of the preventive intervention were also re-contacted for assessments. Attempts were made to contact older siblings regardless of their adjudication status, and all older siblings were eligible for the current study. Efforts to re-contact families included letters, monthly mailings about relevant family-based community events to families, and multiple telephone calls by the original study coordinator, with whom the families already had an existing relationship. We did not contact families who indicated that they did not wish to continue participation. The sample was marked by high levels of transience, with frequent phone number and address changes. Three siblings asked not to be contacted, one sibling refused to participate, and the parent of one indicated that the preschool sibling was deceased. The remaining non-participating youth were lost to the study, or had no contact with their families, and we were unable to locate them to successfully schedule the follow-up interview. As noted above, differential attrition among boys, but not girls, following the preschool intervention led us to limit subsequent follow-up to girls. The current study sample focused on the 54 females recruited from 37 families, and included 27 targeted preschool and 27 older siblings. Based on this study sample of 54, targets were a mean age of 12.41 years ($SD = 1.50$, range = 10–15) and older siblings were a mean age of 20.63 ($SD = 4.12$, range = 10–28). We recruited 29 females from the intervention group (53.7%), and 25 (46.3%) from the control group, representing 46.0 and 37.3% of the original female sample, respectively. The families included in this study did not differ on poverty, sibling status, parental education, race/ethnicity, and baseline parenting practices compared to those that were not included in this study.

In this 2008–2009 follow-up assessment, parents and youth (target children and siblings) each participated in 90-min telephone-based interviews, covering IPV, dating history and functioning, antisocial behavior, and delinquency. Telephone assessments are commonly used to measure sensitive personal information about adolescents, including psychiatric symptomatology, antisocial behavior, and substance abuse (Gould et al. 2004; Shaffer et al. 2000).

Consent procedures included (1) explanation of study procedures, including confidentiality and limits, and (2) description of the nature of the assessment and reimbursements associated with the assessment. Procedures were discussed by phone by a member of the

study staff with advanced clinical training. Parents (and adolescents/siblings over age 17) were asked to mail the consent forms to the research center. Once parental consent was received, verbal assent was also obtained by phone from the adolescent (17 and under) prior to the interview.

Measures

Table 1 outlines study measures, including means, standard deviations, scale reliability, where applicable, sample items, and inter-correlations among study measures within similar area of outcomes. Outcome measures fell into four domains: perceptions about dating violence by females, perceptions about dating violence by males, expected sanctions for dating violence, and actual IPV behavior. These outcome measures had different eligibility criteria, detailed below. For measures of perceptions about dating violence, all females ($n = 54$) were eligible. For measures of sanctions for dating violence, only those who reported involvement in any dating relationship (since age 10) were eligible ($n = 37$). Consistent with the instructions for IPV assessment used here, only those in a dating relationship in the past year were eligible ($n = 29$).

Perceptions of Dating Violence by Females and Males

The Violence Norms Scales (Ehrensaft 2007)—This measure was used to assess perceptions of dating violence as normative. Participants were asked how often they thought 13 behaviors would occur when a girl is upset with her boyfriend, and were asked about the same behaviors when a boy is upset with his girlfriend. These items consisted of non-physical forms of dating violence such as threats, and coercive and jealous tactics. Responses were coded on a scale from 1 (never) to 5 (almost all the time) and means were calculated for both scales.

Dating Violence Prevalence Beliefs—Participants were asked about their perceptions of IPV prevalence for same-aged girls and boys in this country. Specifically, participants indicated how many people out of 10 would commit the following acts: (a) hit, kick, bite, choke, or beat up a partner; (b) use a knife or gun or threaten to use a knife or gun on a partner; and (c) push, slap, shove, or throw something at a partner. These three variables were averaged for an overall measure of perceived female peer violence and male peer violence.

Peer Dating Violence—Participants were asked whether or not their female and male peers had committed each of three violent acts (the same acts asked above in the perceptions of normative violence scales). In this case, a variety scale score was used, summing the total numbers of items to which a participant responded yes. Variety scales are extensively used to measure violence in the field of criminology, are highly correlated with frequency and seriousness measures, but have stronger reliability and predictive validity than frequency or seriousness measures (Robins 1978). A separate variable was used for female peer dating violence and male peer dating violence. The variety scale scores had possible values of 0 to 3.

Violence Sanctions

The Violence Sanctions Scales (Ehrensaft 2007)—This scale assessed participants' perceptions of consequences for perpetrating specific acts of dating violence and the consequences for a partner who commits violent acts toward them. Participants received these questions if they were currently dating, or had ever dated since the age of 10. The scales each consist of eight items addressing retaliatory, social, and authority-related consequences of IPV. Participants rate the likelihood of each consequence on a scale from 1 to 10. Means were calculated separately for (a) total sanctions for perpetrating violence, (b) your partner's retaliation against you for perpetrating violence, (c) authority and social sanctions for perpetrating violence, (d) total sanctions for your violent partner, (e) your retaliation against a violent partner, and (f) your partner's authority and social sanctions for perpetrating violence.

Intimate Partner Violence Behavior—We used the Conflict in Adolescent Dating Relationships Inventory (CADRI; Wolfe et al. 2001) to assess abusive behavior (perpetration and victimization) in the romantic relationships of both the original target offspring and their older siblings. This 35-item instrument was designed to measure conflict and aggression in romantic relationships in early adolescence to emerging adulthood. The CADRI has good test-retest reliability and moderate-high internal consistency and criterion validity (Wolfe et al. 2001), and has been validated in minority adolescents (Hokoda et al. 2006).

We utilized a shortened 12-item version of the CADRI, with questions pertaining to Physical Abuse, Verbal/Emotional Abuse, and Relational Abuse (drawing from 3/5 of the CADRI subscales). We prioritized items from the Verbal/Emotional Abuse subscale on the basis of the young age of many of our participants, expecting that these items would capture abusive behaviors more common in this age cohort, as well as in older siblings. Participants who reported current or recent (in past year) relationship involvement were asked to report how frequently each of 12 behaviors were done by them (perpetration) and by a partner (victimization) on a scale from 1 (never) to 5 (almost all the time). Mean scores were calculated for CADRI perpetration and victimization. The CADRI was originally developed for children aged 13–19 (Wolfe et al. 2001). For measurement consistency, we extend the age range to 25 in this study.

Data Analytic Procedure—We first analyzed the correlational structure of the data and examined the random effects of family (target children and siblings nested within families). Intraclass correlation coefficients (ICCs) for outcome measures ranged from 0.0 to 0.57. For consistency across analyses, the covariance structures for all outcomes were modeled in the same way and included random effect for family. The study outcomes, including two in perceptions of dating violence (toward girls and toward boys) and two in intimate violence behaviors (Violence Sanctions and IPV behaviors), are multivariate constructs consisting of multiple domains. Table 1 displays these constructs and the associated scales, including descriptive information and sample items. *Perceptions of Dating Violence by Girls* comprises three domains: (a) Violence Norms—Girl to Boyfriend, (b) Dating Violence Prevalence Beliefs, and (c) Female Peer Violence. *Perceptions of Dating Violence by Boys* comprises three domains: (a) Violence Norms—Boy to Girlfriend, (b) Dating Violence

Prevalence by Boys, and (c) Male Peer Violence. *Violence Sanctions* consists of two domains: (a) Violence Sanctions Perpetrator and (b) Violence Sanctions Victim. *IPV Behaviors* consists of two domains: (a) IPV Perpetration and (b) IPV Victimization. We analyzed simultaneously all domains within outcomes, adopting an approach similar to multivariate analysis of variance (MANOVA) to test multivariate mixed effect models using the SAS PROC MIXED procedure.

As this study was limited to a subset of the original families, we examined baseline equivalence for the follow-up sample. Intervention and control families included in this follow-up did not differ on baseline (measured at prekindergarten) demographic (i.e., number of siblings, ethnicity) and parenting characteristics (i.e., responsive and harsh parenting practices). Recruited intervention and control children/siblings did not differ on age or ethnicity.

To assess the intent-to-treat (ITT) effect of the intervention, the post-intervention value of the outcomes was modeled as a function of five predictors: two covariates (age and target study child [1 = yes/target child, 0 = sibling]), intervention status, domain, and domain-by-intervention interaction. A significant domain-by-intervention interaction would indicate that the intervention effect differed across domains of the multivariate construct. A non-significant interaction was followed by refitting the model with no interaction term, and an intervention effect common for all domains was reported from this reduced model. Effect sizes and significance tests were considered (Cohen's $d = 0.2$, small effect; $d = 0.5$, medium effect; and $d = 0.8$, large effect).

Results

Intervention-Control Group Differences

As shown in Table 2, ITT analyses revealed significant intervention effects on three multivariate constructs: Perceptions of Dating Violence by Girls, Perceptions of Dating Violence by Boys, and Violence Sanctions. For these three constructs, the domain-by-intervention interaction was not statistically significant. This indicates that the intervention effect was similar across domains of Perceptions of Dating Violence and domains of Violence Sanction behaviors. The intervention resulted in medium-size effects for both Perceptions of Dating Violence by Girls ($d = 0.38$) and Perceptions of Dating Violence by Boys ($d = 0.42$) and medium-large effects for Violence Sanctions behaviors ($d = 0.73$). Specifically, girls in families exposed to the intervention were less likely to indicate that girls' and boys' perpetration of violence was acceptable or normative than girls in the control condition. They were less likely to have male or female peers who had experienced dating violence. Further, they were less likely to expect to retaliate physically against a male dating partner, and anticipated fewer sanctions for the partner's hypothetical violence toward them. Similarly, they were less likely to expect a male partner to retaliate if they perpetrated dating violence, and anticipated fewer sanctions for their own hypothetical dating violence. There was no significant intervention effect for IPV behaviors ($d = 0.19$).

Discussion

The current study investigated whether a parenting intervention to prevent conduct problems in high-risk children results in differences on partner violence perceptions and behavior in adolescence. This study represents one of the few longitudinal studies to examine IPV involvement (perpetration and victimization) in a well-characterized sample at high risk for conduct problems in early childhood. As early conduct problems are one of the strongest predictors of IPV (Ehrensaft et al. 2003), this study contributes important knowledge to the field. This is also the only long-term follow-up of an RCT of a parenting intervention in early childhood to examine impact on IPV. The study is further strengthened by its focus on low-income Latino and African American families, and addresses the dearth of studies of IPV in this population (Breiding 2014).

Among females (targeted preschool-aged girls and their older female siblings), there were significant differences on most of the IPV-related constructs assessed, suggesting overall reduced risk for IPV 8 to 11 years after the original preschool family intervention. Findings suggest that family-based intervention results in females associating with less risky peers and less risky partners in adolescence. Relative to controls, girls whose family had participated in the intervention perceived physical dating violence by boys and girls to be less normative, were less likely to perceive that they or their partners would retaliate physically if they perpetrated violence in the relationship, perceived that fewer girls and boys their age would be physically aggressive toward their boyfriends, and were less likely to report having in their peer group male or female friends who perpetrated physical dating violence against their partners.

In one sense, we were surprised to find that girls in the intervention group perceived *fewer* sanctions for themselves and for a potential partner for perpetrating dating violence. This includes both lower odds of retaliation against a partner, a positive finding, and lower expectations of sanctions by social groups or authority figures. Although we would hope that the intervention group might expect more social and authority sanctions, it is in fact true that most dating violence goes undetected by authorities and social systems, as few adolescents disclose the violence to others (Jackson et al. 2000). The intervention group's perception of fewer sanctions for dating violence may reflect a more realistic view of responses to dating violence on the part of social groups and authorities. Alternatively, since our results suggest that the intervention group is associating with less risky peers, it may be that they are exposed to less dating violence in their peer group, and are thus unaware of sanctions that could result.

Although the mechanism underlying these findings was not tested in the current study, it is possible that the early reductions in conduct problems observed in the targeted preschoolers and their older siblings (Brotman et al. 2005, 2008, 2009) are key to understanding these long-term differences in subsequent development. The current findings are consistent with numerous other analyses from this trial, suggesting that the intervention group generally demonstrates less risky behavior than the control group (Brotman, Dawson-McClure et al. 2005, 2008, 2009).

This study extends prior findings from the original trial, suggesting that *early* intervention induced changes in parenting and conduct problems may “cascade” to later improvements in high-risk adolescents’ social problem solving, affiliation with prosocial peers, and selection of non-aggressive dating or sexual partners. Importantly, this study achieved intervention group differences *without* in fact directly addressing dating relationships. Additionally, as with previous findings, effects of the intervention were found for siblings of the target child as well as for the target child themselves, indicating the true family-based nature of the intervention effects. Consistent with developmental cascade models informing this study, prior work with this sample suggests that effects of early intervention targeting core self-regulation functioning (impulsivity, low attentional control, and stress responsivity) may be observable in preadolescence or early adolescence. These intervention effects appear to generalize to a range of outcomes influenced by such regulatory processes, including social problem solving and conflict management skills (Denham et al. 2003; Mostow et al. 2002). Self-regulation is in turn well known to lower risk for peer aggression (Olson et al. 2011) rejection by normative peers, and deviant peer affiliation (Lee 2011).

Several studies followed up interventions delivered to older children. These found evidence of intervention mediated effects on adolescent behavioral outcomes for parental warmth (Zhou et al. 2008), authoritative parenting (Cowan et al. 2005), effective and consistent discipline (Lochman and Wells 2004; Bernat et al. 2007; Zhou et al. 2008), and family communication and problem solving (Brody et al. 2008; DeGarmo et al. 2009). Here, we extend earlier findings, suggesting that early intervention-induced changes in parenting and conduct problems may cascade to later improvements in high-risk adolescents’ conflict management, prosocial peer affiliation, and partnering with non-aggressive mates.

While important, the present findings should be interpreted within the context of the study limitations. First, the original RCT sample was relatively small and only 46% of the intervention and 37% of the control conditions were enrolled in the follow-up study. Findings are limited to girls only because of our inability to follow adequate numbers of boys from the control condition. Future research should address strategies to maximize retention of at risk boys for long-term follow-up on completion of parenting intervention studies, so as to extend the current study design to samples of boys. Second, there was relatively low self-report of violence on the teen dating violence measures, perhaps due to the younger age of some targets at this follow-up. Although certainly not undesirable, this made it difficult to detect differences on the main behavioral outcome we sought to examine. Finally, due to concerns about maintaining alliance with the sample, our measure of dating violence combined physical, relational, and verbal/emotional into one variable and omitted sexual dating violence. Further research will need to consider the effects of preventing early conduct problems on risk for sexual dating violence. The present findings, if replicated in other studies, strongly support the concept of targeted interventions for high-risk families as a mechanism for cascade effects on desired behaviors and norms, both proximally and distally. However, we emphasize that these are initial results, with some degree of complexity. Some findings show clear reduction of IPV risk (less risky dating violence norms), and others are less clear (IPV sanctions), or did not reach significance (IPV behavior). The findings warrant further study in subsequent research.

A history of conduct problems has been established in the literature as a robust risk for partner violence (Ehrensaft et al. 2003; Magdol et al. 1998; Ehrensaft et al. 2004), but there are no other published experimental manipulations of early intervention on risk for dating violence. Given the documented resistance of adult IPV to intervention (Dunford 2000; Stuart et al. 2007), these preliminary findings merit replication, and suggest novel directions for future prevention research. Future research, using large, diverse samples, should examine further the effects of successful interventions to reduce conduct problems on IPV relevant beliefs and behaviors at later stages of development. Girls at familial risk for conduct problems may benefit from parenting interventions even when they are not yet exhibiting symptoms of aggression. In fact, mothers of at risk girls often have personal histories of IPV, and early childhood may be an important window of opportunity for mothers motivated to protect their own daughters from similar experiences (Foshee et al. 2015). Future research should also strengthen strategies to retain at risk boys for long-term follow-up on completion of parenting intervention studies to extend the current study design to samples of boys. Clarifying mechanisms of change in IPV risk with further experimental trials may support advancement of IPV prevention.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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References

- Avery-Leaf, S, Cascardi, M. Dating violence education: Prevention and early intervention strategies. In: Schewe, PA, editor. Preventing violence in relationships: Interventions across the life span (pp. 79–105). Vol. viii. Washington, DC, US: American Psychological Association; 2002. 289
- Bernat DH, August GJ, Hektner JM, Bloomquist ML. 2007; The early risers preventive intervention: Testing for six-year outcomes and mediational processes. *Journal of Abnormal Child Psychology*. 35:605–617. DOI: 10.1007/s10802-007-9116-5 [PubMed: 17333359]
- Bonomi AE, Travert B, Anderson ML, Kernic MA, Holt VA. 2014; Intimate partner violence and neighborhood income: a longitudinal analysis. *Violence Against Women*. 20:42–58. [PubMed: 24476760]
- Breiding MJ. 2014; Prevalence and characteristics of sexual violence, stalking, and intimate partner violence victimization—national intimate partner and sexual violence survey, United States, 2011. *Morbidity and mortality weekly report Surveillance summaries (Washington, DC: 2002)*. 63:1.
- Brody GH, Murry VM, Gibbons M, Gibbons FX, Molgaard V. 2008; The strong African American families program on youth's conduct problems. *Journal of Adolescent Health*. 43:474–481. [PubMed: 18848676]
- Brotman LM, Gouley KK, O'Neal CR, Klein RG. 2004; Preschool-aged siblings of adjudicated youths: Multiple risks for conduct problems. *Early Educational Development, Special Issue: Prevention Interventions with Young Children*. 15:387–406.
- Brotman LM, Gouley KK, Chesir-Teran D, Dennis T, Klein RG, Shrout P. 2005; Prevention for preschoolers at high risk for conduct problems: Immediate outcomes on parenting practices and child social competence. *Journal of Clinical Child & Adolescent Psychology*. 34:724–734. [PubMed: 16232069]

- Brotman LM, Dawson-McClure S, Gouley KK, McGuire K, Burraston B, Bank L. 2005; Older siblings benefit from a family-based preventive intervention for preschoolers at risk for conduct problems. *Journal of Family Psychology*. 19:581–591. [PubMed: 16402873]
- Brotman LM, Dawson-McClure S, Huang K, Theise R, Kamboukos D, Wang J, Petkova E, Ogedegbe G. 2012; Early childhood family intervention and long-term obesity prevention among high-risk minority youth. *Pediatrics*. 129:621–628.
- Brotman LM, Gouley KK, Huang KY, Rosenfelt A, O'Neal C, Klein RG, Shrout P. 2008; Preventive intervention for preschoolers at high risk for antisocial behavior: Long-term effects on child physical aggression and parenting practices. *Journal of Clinical & Child Adolescent Psychology*. 37:386–396.
- Brotman LM, O'Neal CR, Huang KY, Gouley KK, Rosenfelt A, Shrout P. 2009; An experimental test of parenting practices as mediators of preschool physical aggression. *Journal Child Psychology and Psychiatry*. 50:235–245.
- Caetano R, McGrath C, Ramisetty-Mikler S, Field CA. 2005; Drinking, alcohol problems and the five-year recurrence and incidence of male to female and female to male partner violence. *Alcoholism: Clinical and Experimental Research*. 29:98–106. DOI: 10.1097/01ALC.00001500015.84381.63
- Capaldi DM, Crosby L. 1997; Observed and reported psychological and physical aggression in young, at-risk couples. *Social Development*. 6:184–206. DOI: 10.1111/1467-9507.00033
- Chamberlain P, Moore KJ. 2002; Chaos and trauma in the lives of adolescent females with antisocial behavior and delinquency. *Journal of Aggression, Maltreatment & Trauma*. 6:79–108. DOI: 10.1300/J146v06n01_05
- Cowan, CP, Cowan, PA, Heming, G. Two variations of a preventive intervention for couples: Effects on parents and children during the transition to elementary school. In: Cowan, PA, Cowan, CP, Ablow, JC, Johnson, VK, Measelle, JR, editors. *The family context of parenting in children's adaptation to elementary school*. Mahwah, NJ: Erlbaum; 2005.
- DeGarmo DS, Forgatch MS. 2005; Early development of delinquency within divorced families: Evaluating a randomized preventive intervention trial. *Developmental Science*. 8:229–239. [PubMed: 15819755]
- DeGarmo DS, Eddy JM, Reid JB, Fetrow RA. 2009; Evaluating mediators of the impact of the linking the interests of families and teachers (LIFT) multimodal preventive intervention on substance use initiation and growth across adolescence. *Prevention Science*. 10:208–220. [PubMed: 19238545]
- Denham SA, Blair KA, DeMulder E, Levitas J, Sawyer K, Auerbach-Major S, Queenan P. 2003; Preschool emotional competence: Pathway to social competence? *Child Development*. 74:238–256. [PubMed: 12625448]
- Dishion TJ, Nelson SE, Kavanagh K. 2003; The family check-up with high-risk young adolescents: Preventing early-onset substance use by parent monitoring. *Behavior Therapy*. 34:553–571.
- Dodge, KA, Malone, PS, Lansford, JE, Miller, SE, Pettit, GS, Bates, JE. *A dynamic cascade model of the development of substance—use onset (monographs of the Society for Research in Child Development)*. New York: Wiley-Blackwell; 2010.
- Dunford FW. 2000; The San Diego Navy Experiment: an assessment of interventions for men who assault their wives. *Journal of Consulting and Clinical Psychology*. 68:468–476. [PubMed: 10883563]
- Ehrensaft MK, Cohen P, Brown J, Smailes E, Chen H, Johnson JG. 2003; Intergenerational transmission of partner violence: a 20-year prospective study. *Journal of Consulting and Clinical Psychology*. 71:741–753. [PubMed: 12924679]
- Ehrensaft MK, Moffitt TE, Caspi A. 2004; Clinically abusive relationships in an unselected birth cohort: Men's and women's participation and developmental antecedents. *Journal of Abnormal Psychology*. 113:258–270. [PubMed: 15122946]
- Ehrensaft MK. 2005; Interpersonal relationships and sex differences in the development of conduct problems. *Clinical Child and Family Psychology Review*. 8:39–63. [PubMed: 15898304]
- Ehrensaft MK, Moffitt TE, Caspi A. 2006; Is domestic violence followed by an increased risk of psychiatric disorders among women but not among men? A longitudinal cohort study. *The American Journal of Psychiatry*. 163:885–892. [PubMed: 16648331]

- Ehrensaft MK. 2007The opposite sex relationships interview. Unpublished manuscript. Columbia University, Division of Child and Adolescent Psychiatry.
- Exner-Cortens D, Eckenrode J, Rothman E. 2013; Longitudinal associations between teen dating violence, victimization, and adverse health outcomes. *Pediatrics*. 131:71–78. [PubMed: 23230075]
- Forgatch MS, Patterson GR, DeGarmo DS, Beldavs ZG. 2009; Testing the Oregon delinquency model with 9-year follow-up of the Oregon Divorce Study. *Development and Psychopathology*. 21:637–660. [PubMed: 19338702]
- Foshee VA, Reyes HLM, Ennett ST, Cance JD, Bauman KE, Bowling JM. 2012; Assessing the effects of families for safe dates, a family-based teen dating abuse prevention program. *Journal of Adolescent Health*. 51:349–356. [PubMed: 22999835]
- Foshee VA, Benefield T, Chen MS, Reyes LM, Dixon KS, Ennett ST, Moracco KE, Bowling JM. 2016The effects of the moms and teens for safe dates program on dating abuse: a conditional process analysis. *Prevention Science*. :1–10. [PubMed: 26103920]
- Foshee VA, Benefield T, Dixon KS, Chang L, Senkomago V, Ennett ST, Bowling JM. 2015; The effects of moms and teens for safe dates, a dating abuse prevention program for adolescents exposed to domestic violence. *Journal of Youth and Adolescence*. 44:995–1010. [PubMed: 25776110]
- Gould MS, Munfakh JLH, Kleinman M, Lubell K, Provenzano D. 2004; Impact of September 11th terror attacks on teenager’s mental health. *Applied Developmental Science*. 8:158–169.
- Hokoda A, Ramos-Lira L, Celaya P, Vilhauer K, Angeles M, Ruiz S, Malcarne VL, Mora MD. 2006; Reliability of translated measures assessing dating violence among Mexican adolescents. *Violence and Victims*. 21:117–127. [PubMed: 16494137]
- Jackson SM, Cram F, Seymour FW. 2000; Violence and sexual coercion in high school student’s dating relationships. *Journal of Family Violence*. 15:23–36.
- Lee SS. 2011; Deviant peer affiliation and antisocial behavior: Interaction with monoamine oxidase A (MAOA) genotype. *Journal of Abnormal Child Psychology*. 39:321–332. [PubMed: 21152968]
- Lochman JE, Wells KC. 2004; The coping power program for preadolescent aggressive boys and their parents: Outcome effects at the 1 year follow-up. *Journal of Consulting and Clinical Psychology*. 53:447–457.
- Magdol L, Moffitt TE, Caspi A, Silva PA. 1998; Developmental antecedents of partner abuse: a prospective-longitudinal study. *Journal of Abnormal Psychology*. 107:375–389. [PubMed: 9715573]
- Masten AS, Roisman GI, Long J, et al. 2005; Developmental cascades: Linking academic achievement and externalizing and internalizing problems over 20 years. *Developmental Psychology*. 41:733–746. [PubMed: 16173871]
- Masten AS, Cicchetti D. 2010; Developmental cascades. *Development and Psychopathology*. 22:491–495. [PubMed: 20576173]
- Moffitt, TE, Caspi, A, Rutter, M, Silva, PA. Sex differences in antisocial behavior: Conduct disorder, delinquency and violence in the Dunedin Longitudinal Study. New York, NY: Cambridge University Press; 2001.
- Morris AM, Mrug S, Windle M. 2015; From family violence to dating violence: Testing a dual pathway model. *Journal of Youth Adolescence*. 44:1819–1835. [PubMed: 26208831]
- Mostow AJ, Izard CE, Fine S, Trentacost CJ. 2002; Modeling emotional, cognitive, and behavioral predictors of peer acceptance. *Child Development*. 73:1775–1787. [PubMed: 12487493]
- Olson S, Lopez-Duran N, Lunkenheimer ES, Chang H, Sameroff A. 2011; Individual differences in the development of early peer aggression: Integrating contributions of self-regulation, theory of mind, and parenting. *Development and Psychopathology*. 23:253–266. [PubMed: 21262052]
- Pantin H, Prado G, Lopez B, Huang S, Tapia MI, Schwartz SJ, Sabillion E, Brown CH, Branchini J. 2009; A randomized controlled trial of Familias Unidas for Hispanic adolescents with behavior problems. *Psychosomatic Medicine*. 71:987–995. [PubMed: 19834053]
- Patterson GR, Dishion TJ, Blank L. 1984; Family interaction: a process model of deviancy training. *Aggressive Behavior*. 10:253–367.
- Patterson GR, Forgatch MS, DeGarmo DS. 2010; Cascading effects following intervention. *Development and Psychopathology*. 22:949–970. [PubMed: 20883592]

- Prado G, Pantin H, Briones E, Schwartz SJ, Feaster D, et al. 2007; A randomized controlled trial of a parent-centered intervention in preventing substance use and HIV risk behaviors in Hispanic adolescents. *Journal of Consulting and Clinical Psychology*. 75:914–926. [PubMed: 18085908]
- Repetti R, Taylor SE, Seeman TE. 2002; Risky families: Family social environments and the mental and physical health of offspring. *Psychological Bulletin*. 128:330–366. [PubMed: 11931522]
- Robins L. 1978; Sturdy childhood predictors of adult antisocial behaviour: Replications from longitudinal studies. *Psychological Medicine*. 8:611–622. [PubMed: 724874]
- Sandler I, Schoenfelder E, Wolchik S, MacKinnon D. 2011; Long-term impact of prevention programs to promote effective parenting: Lasting effects but uncertain processes. *Annual Review of Psychology*. 62:299.
- Shaffer D, Fisher P, Lucas CP, Dulcan MK, Schwab-Stone ME. 2000; NIMH Diagnostic Interview Schedule for Children version IV (NIMH DISC-IV): Description, differences from previous versions, and reliability of some common diagnoses. *Journal of the American Academy of Child & Adolescent Psychiatry*. 39:28–38. [PubMed: 10638065]
- Shaw DS, Dishion TJ, Supplee L, Gardner F, Arnds K. 2006; Randomized trial of a family-centered approach to the prevention of early conduct problems: 2-year effects of the family check-up in early childhood. *Journal of Consulting and Clinical Psychology*. 74:1–9. [PubMed: 16551138]
- Silverman JG, Raj A, Mucci LA, Hathaway JE. 2001; Dating violence against adolescent girls and associated substance use, unhealthy weight control, sexual risk behavior, pregnancy, and suicidality. *Journal of American Medical Association*. 286:572–579.
- Spoth R, Randall GK, Shin C. 2008; Increasing school success through partnership-based family competency training: Experimental study of long-term outcomes. *School Psychology Quarterly*. 23:70–89. [PubMed: 20376279]
- Stuart GL, Temple JR, Moore TM. 2007; Improving batterer intervention programs through theory-based research. *Journal of the American Medical Association*. 298:560–562. [PubMed: 17666677]
- United States Department of Justice. Intimate partner violence (publication no. NCJ 178247). Washington, DC: U.S. Government Printing Office; 2000.
- Vagi KJ, Olsen EOM, Basile KC, Vivolo-Kantor AM. 2015; Teen dating violence (physical and sexual) among US high school students: Findings from the 2013 National Youth Risk Behavior Survey. *Journal of American Medical Association, Pediatrics*. 169:474–482.
- Vezina J, Herbert M, Poulin F, Lavoie F, Vitaro F, Tremblay RE. 2011; Risky lifestyle as a mediator of the relationship between deviant peer affiliation and dating violence victimization among adolescent girls. *Journal of Youth and Adolescence*. 40:814–824. [PubMed: 21080045]
- Webster-Stratton C, Hollinsworth T, Kolpacoff M. 1989; The long-term effectiveness and clinical significance of three cost-effective training programs for families with conduct-problem children. *Journal of Consulting and Clinical Psychology*. 57:550. [PubMed: 2504794]
- Webster-Stratton C, Taylor T. 2001; Nipping early risk factors in the bud: Preventing substance abuse, delinquency, and violence in adolescence through interventions targeted at young children (0–8 years). *Prevention Science*. 2:165–192. [PubMed: 11678292]
- Whitaker DJ, Le B, Niolon PH. 2010; Persistence and desistance of the perpetration of physical aggression across relationships findings from a national study of adolescents. *Journal of Interpersonal Violence*. 25:591–609. [PubMed: 19506166]
- Whitaker DJ, Murphy CM, Eckhardt CI, Hodges AE, Cowart M. 2013; Effectiveness of primary prevention efforts for intimate partner violence. *Partner Abuse*. 4:175–195.
- Wolchik SA, Sandler I, Weiss L, Winslow EB. New beginnings: an empirically-based program to help divorced mothers promote resilience in their children. In: Briesmeister, JM, Schaefer, CE, editors. *Handbook of parent training: Helping parents prevent and solve problem behaviors*. New York: Wiley; 2007. 25–62.
- Wolfe DA, Scott K, Reitzel-Jaffe D, Wekerle C, Grasley C, Straatman AL. 2001; Development and validation of the conflict in adolescent dating relationships inventory. *Psychological Assessment*. 13:277. [PubMed: 11433803]
- Wolfe DA, Crooks CV, Lee V, McIntyre-Smith A, Jaffe PG. 2003; The effects of children's exposure to domestic violence: a meta-analysis and critique. *Clinical Child and Family Psychology Review*. 6:171–187. [PubMed: 14620578]

Zhou Q, Sandler IN, Millsap RE, Wolchik SA, Dawson-McClure S. 2008; Mother-child relationship quality and effective discipline as mediators of the 6-year effects of the New Beginnings Program for children from divorced families. *Journal of Consulting and Clinical Psychology*. 76:579–594. [PubMed: 18665687]

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Table 1

Measures used in the current study

Variable	Total mean (SD)	Inter. mean (SD)	Cont. mean (SD)	α	Sample item
Violence Belief/Attitude Toward Girls (full sample, $n = 52$) (r among scales = 0.24–0.39)	2.15 (0.68)	2.07 (0.63)	2.24 (0.74)	0.78	How often do you think a girl might do these things when she is upset with her boyfriend?: Spread rumors about him.
Violence Norms—Girl to Boyfriend					
Perceptions of IPV Prevalence in Same-Aged Females	5.42 (2.54)	4.61 (2.39)	6.45 (2.38)	0.81	How many girls do you think would hit, kick, bite, choke, or beat up a boyfriend?
Female Peer Violence	1.13 (1.03)	0.97 (1.02)	1.35 (1.03)	0.67	Has any of your female friends hit, kicked, bit, choked, or beat up a boyfriend?
Violence Belief/Attitude Toward Boys (full sample, $n = 52$) (r among scales = 0.23–0.41)					
Violence Norms—Boy to Girlfriend	2.44 (0.92)	2.27 (0.89)	2.66 (0.93)	0.80	How often do you think a boy might do these things when he is upset with his girlfriend?: Threaten to hurt her.
Perceptions of IPV Prevalence in Same-Aged Males	5.62 (2.72)	5.37 (2.77)	5.94 (2.69)	0.86	How many boys do you think would push, slap, shove, or throw something at a girlfriend?
Male Peer Violence	0.94 (0.96)	0.86 (0.95)	1.04 (0.98)	0.59	Has any of your male friends used a knife or gun, or threatened to use a knife or gun on a girlfriend?
Violence Sanctions (limit to participants who reported involvement in any dating relationship since age 10, $n = 37$) (r between scales = 0.48)					
Violence Sanction Perpetrator	3.28 (2.13)	2.50 (1.38)	4.30 (2.53)	0.85	What would happen if you hurt your boyfriend/girlfriend physically?: How likely is it that he/she would tell your friends?
Violence Sanction Victim	5.03 (2.05)	4.51 (2.08)	5.71 (1.85)	0.77	What would happen if your boyfriend/girlfriend physically hurt you?: How likely is it that he/she would get in trouble with his/her family?
IPV Behaviors (limit to participants who reported involvement in a dating relationship within past year, $n = 29$) (r between scales = 0.70)					
IPV Perpetration	2.14 (0.59)	2.00 (0.45)	2.31 (0.71)	0.82	Tell me your best guess about how often these things happened in the past year: You threw something at him/her.
IPV Victimization	1.90 (0.49)	1.90 (0.44)	1.90 (0.55)	0.71	Tell me your best guess about how often these things happened in the past year: He/she kicked, hit, or punched you.

For Violence Belief/Attitude scales, data were available for 52 cases. For Violence Sanctions, all 37 females who had dating relationship experience provided data. For IPV behaviors, all 29 females who were in a dating relationship within past year provided data

Inter. intervention, Cont control, α internal consistency of the reported scale

Table 2

Intervention effects on intimate partner violence beliefs/attitude and behaviors

	Intimate partner violence belief/attitude (full sample)		Intimate partner violence behaviors (limited to participants in relationship)	
	Violence belief/attitude toward girls ^a	Violence belief/attitude toward boys ^b	Violence sanctions ^c	IPV behaviors ^d
	Estimate	SE	Estimate	SE
Intent-to-treat analyses				
Intercept	46.83**	6.06	38.67**	6.66
Age	0.41	0.67	1.46	0.78
Target child	-6.42	6.93	-1.01	8.06
Intervention	-10.69*	4.69	-12.52*	5.33
Effect size	$d = 0.38^*$		$d = 0.73^*$	

Four multivariate analyses were conducted. Analyses were conducted first by including five predictors: two covariates (age and target child [1 = yes/target child, 0 = sibling]), intervention status, domain, and the domain-by-intervention interaction. Because the domain-by-intervention interaction was not significant across all multi-variate analyses, we eliminated this interaction term and reran the analyses. This table shows results from this reduced model. The reduced model also included domain(s) as control variable(s) (estimates for the domains are not shown)

* $p < 0.05$

** $p < 0.001$

^aViolence belief/attitude toward girls consists of three domains: Violence Norms—Girl to Boyfriend, Perceptions of IPV Prevalence in Same-Aged Females, and Female Peer Violence

^bViolence belief/attitude toward boys consists of three domains: Violence Norms—Boy to Girlfriend, Perceptions of IPV Prevalence in Same-Aged Males, and Male Peer Violence. Scores on these two belief/attitude scales were rescaled to 0–100

^cViolence sanctions (on a scale of 1–10) consists of two domains: Violence Sanctions Perpetrator and Violence Sanctions Victim

^dIPV behaviors (on a scale of 1–5) consists of two domains: IPV Perpetration and IPV Victimization