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**Predicting Intimate Partner Violence for At-Risk Young Adults
and Their Romantic Partners**

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ABSTRACT

Objectives

Intimate partner violence (IPV) in young men and women's romantic relationships is widely recognized as a significant public health problem due to its high prevalence, consequences for physical and mental health, and persistent nature. Work is needed on identifying both the developmental precursors to IPV and the pathways by which early risk increases susceptibility to IPV in order to develop targeted, timely, and effective interventions. The work funded under this National Institute of Justice award combined *a prospective longitudinal component* on how developmental risk factors in childhood predicted IPV in young adulthood with *a proximal component* on how concurrent contextual risk factors were related to IPV. Study Aims were tested using data collected over a 15-year period. Secondary analyses with 323 young adults (184 women, 139 men; average age 21 years) and their romantic partners (146 women, 177 men; average age 22 years) participating in the community-based Linking the Interests of Families and Teachers (LIFT) Study were conducted to examine pathways (i.e., prospective mediational models) predictive of IPV. The models were based on Dynamic Developmental Systems theory, which specifies how family, peer, and adolescent adjustment factors, and how couple and young adult adjustment factors (proximal associations), are related to IPV. The long-term impacts of the LIFT preventive intervention, which was intended to prevent aggression during and following elementary school, on IPV were also examined.

Results

Findings from five major sets of analyses were presented in journal articles. Areas of interest included examining pathways to IPV from childhood (i.e., prospective mediational risk models) with family and peer risk factors, examining young adult (proximal) IPV associations

with substance use and relationship quality, as well as investigating the long-term effects of the LIFT intervention on IPV. Couples' IPV prevalence rates were relatively high. Most IPV was bidirectional or mutual, with men and women both perpetrating and being victims of IPV. Findings on developmental risk factors in childhood supported the intergenerational transmission of violence hypothesis. Childhood experiences of interparent IPV and experiences of coercive parenting (i.e., unskilled parenting) in the family-of-origin heightened the risk of IPV involvement in young adult romantic relationships. Findings also suggest that intergenerational processes and developmental pathways may be gendered. Pathways from family risk factors to IPV were via increased likelihood of problematic development in the youth, such as adolescent antisocial behavior, particularly for young men. Association with delinquent peers during adolescence was identified as a pathway to later IPV. Findings on contextual risk factors within young adulthood suggest important partner influences, such that partner characteristics of antisocial behavior and delinquent peer association also predict IPV above and beyond childhood risk factors. Men and women within couples were similar in levels of substance use, and there were associations between substance use and IPV particularly for men and for polysubstance users. Lastly, although the LIFT prevention program improved children's social and problem-solving skills and reduce physical aggression during childhood, the LIFT intervention did not appear to prevent IPV during young adulthood.

Implications of Research

This research moves beyond over-simplistic single cause explanations to test multiple cause and developmental pathways to IPV from childhood to young adulthood. Testing such questions can help clarify the complex etiology of IPV. This work increases our understanding of developmental risks and pathways to multiple types of IPV (e.g., physical, sexual, verbal abuse)

and provides key information for the development of effective IPV prevention programs. Specifying the predictors and pathways (mediators) over time to IPV in prospective longitudinal data sets yields specific behavioral targets for prevention programs and informs the developmental timing and tailoring of interventions for various public health problems, including IPV.

PURPOSE

The research purpose of this project was to advance the scientific understanding of predictors to and risk factors for IPV in young adulthood through the utilization of a data set that combines (a) strong developmental and dyadic theory; (b) information on both men and women; (c) multimethod/informant longitudinal assessment of family, peer, couple, and adjustment factors across childhood, adolescence, young adulthood; (d) several types of IPV as well as IPV-related injuries; and (e) cutting-edge data analytic techniques. Primary research aims were as follows.

Aim 1. To examine *a theoretical mediational risk model* in which longitudinal associations between childhood family relations (e.g., interparent IPV) and later IPV are mediated through adolescent youth adjustment (e.g., substance use) and peer relations (e.g., delinquent peer association).

Aim 2. To examine the *long-term intervention impacts* of the LIFT program on IPV in young adulthood. Intervention main effects, mediators (e.g., playground physical aggression), and moderators (e.g., gender, age) will be examined.

Aim 3. To examine *proximal associations* between youth and partner adjustment (e.g., depressive symptoms), couple interaction processes (e.g., antisocial talk), and IPV in young adulthood.

PROJECT PARTICIPANTS, DESIGN, AND METHODS

Secondary analyses were conducted with data on young adults and their romantic partners who participated in the LIFT Study. At enrollment, LIFT Study participants ($N = 671$) were from at-risk (by virtue solely of living in neighborhoods with relatively high rates of juvenile delinquency) and lower socioeconomic backgrounds and in Grade 1 (ages 6-7 years) and Grade 5 (ages 10-11 years) at local public schools in a moderately sized metropolitan area in the Pacific Northwest. Approximately 85% of students and their families (77% had two parents) agreed to participate in the study. Most participants (85%) were non-Hispanic and European American, 5% were Hispanic and European American, and 2% to 3% were from the other major racial groups in the United States. In the first year of the study, LIFT participants were randomly assigned by school to either receive a short-term prevention program designed to reduce child aggressive and other antisocial behaviors or services as usual. Participants were interviewed yearly over approximately a 15-year period, with the first interviews beginning in 1991 and the last ending in 2009. Data were collected within a multimethod/informant measurement strategy that included direct observations of family and playground interaction, the collection of classroom peer nominations and official administrative records (e.g., from juvenile justice), and the completion of interviews and questionnaires by participants and their parents and teachers. On average, 82% of participants completed assessments for any given yearly interview. At various points, there were no significant differences between retained and dropped participants in baseline levels of antisocial behavior across a variety of parent and teacher measures and demographic characteristics.

When LIFT participants reached young adulthood, 323 (60%; 184 women, 139 men; average age 21 years) participated with a romantic partner or spouse (146 women, 177 men;

average age 22 years) in a couple assessment with interviews and questionnaires, including IPV measures administered separately to participant and partner and observed dyadic interaction. Both members of participating couples tended to be European American (88% of participants and 83% of partners) and lower income (76% of participants and 62% of partners earned under \$25,000). No minimum length of relationship was required for participation. Couples defined their relationship status as follows: 41% were dating (5% engaged), 43% cohabitating (12% engaged), and 16% married. There were no significant differences in adolescent antisocial behavior for participants who participated with a romantic partner relative to those who did not participate in a couple assessment.

ANALYTIC PLAN

Variables that exhibited significant skew were transformed to more closely approximate a normal distribution. Observed construct scores were computed by standardizing and combining indicators by calculating the mean, first within reporting agent and second across agent scores. In two-parent families, the mean of mother and father report was calculated. To be included as an indicator, scales needed to demonstrate adequate internal consistency and convergence with other indicators (e.g., item-total correlations of 0.2 or more with standardized Cronbach's alpha equal or greater to 0.6, and factor loadings with other indicators on a one-factor solution of 0.3 or higher; Patterson & Bank, 1986). Due to some missing data, path model parameters were estimated using the robust maximum likelihood estimator and missing data option (Muthén & Muthén, 1998-2012). The seven same-sex women couples (2%) were dropped from the current analyses, due to the small sample size, in order to focus on men's and women's IPV within heterosexual couples, yielding a total of 316 men-women couples.

Young men and women's involvement in IPV was modeled in a variety of ways. First,

developmental risk factors for IPV perpetration and victimization were examined both separately as well as at the level of couple, given the high degree of bidirectional IPV. Second, some models examined predictions to each type of IPV behavior separately, whereas others utilized an overall IPV factor, given the significant associations among the types of IPV behaviors. Third, latent class analysis was employed to understand risk for specific types of IPV behaviors, compared to other methods that average over various types of behaviors. Thus, the current project afforded nuanced as well as omnibus examination of risk for young adult IPV involvement, including perpetration and victimization of psychological, physical and sexual IPV, and risk for prevalence of specific IPV behaviors.

Mediation models involving family risk factors were estimated in Mplus version 7.3 (Muthén & Muthén, 1998-2012). Simple mediation models were fitted to estimate direct effects and mediated effects across gender. Moderated (by gender) mediation (Muthén & Asparouhov, 2015; Preacher, Rucker, & Hayes, 2007) were utilized to examine whether men or women were more likely to perpetrate (or be victims of) IPV in young adulthood due to both direct influence from family risk factors and indirect or mediated influence from family risk factors through subsequent adolescent antisocial behavior (or psychopathology). IPV (psychological, physical, and sexual) perpetration and victimization were modeled as count outcomes using Poisson distributions.

For IPV classes, heterogeneity in the IPV perpetration behaviors of both the participants and their romantic partners was examined using latent class analysis conducted in Mplus version 7.3 (Muthén & Muthén, 1998-2012). The average probabilities with which men and women endorsed each of the IPV items were allowed to vary across classes, and class assignment occurred at the level of the couple. Class enumeration or the number of latent classes necessary

to account for the variance in endorsement of IPV perpetration behaviors was primarily assessed via the Lo-Mendell-Rubin likelihood ratio test (Lo, Mendell, & Ruben, 2001), which examines significant improvement in overall model fit for a k versus a $(k + 1)$ class model. After establishing latent IPV classes, each couple's predicted odds of belonging to the more versus less severe young adult IPV class were then used as the outcomes in the mediation model. Mediation was tested using the product of coefficients method by creating interaction terms between (a) the effect of the antecedent on the mediator and (b) the effect of the mediator in the outcome and then testing whether the product of these terms was significantly different from zero.

The actor-partner interdependence models (Kenny, Kashy, & Cook, 2006) were separately fit for each type of IPV (psychological, physical, and sexual) using SAS software (SAS Institute, 2008). IPV outcomes were modeled as count variables with negative binomial distributions and dependence between partners' rates of IPV perpetration modeled using random effects (Loeys & Molenberghs, 2013). Given that men and women with a shorter relationship duration had less opportunity to perpetrate IPV, the rate of IPV (rather than the absolute count) was modeled as the outcome.

KEY FINDINGS

High prevalence of bidirectional IPV. Based on self and partner reports on the Revised Conflict Tactics Scale (Straus, Hamby, Boney-McCoy, & Sugarman, 1996), couples' IPV prevalence rates were relatively high, with 92% of couples reporting psychological IPV, 40% physical IPV, and 55% sexual IPV, as well as 13% reporting IPV-related injuries. For the couples with IPV in their relationships, 91% participated in bidirectional psychological IPV, 71% bidirectional physical IPV, 66% bidirectional sexual IPV, and 27% experienced bidirectional IPV-related injuries. Thus, the majority of IPV occurred as dyadic and bidirectional

behavior, with men and women reporting that they both perpetrated and experienced IPV in their relationships. These bidirectional IPV prevalence rates were consistent with a comprehensive review of prior studies that found bidirectional IPV was the most common pattern in romantic relationships with IPV (Langhinrichsen-Rohling, Misra, Selwyn, & Rohling, 2012). The potential impact of bidirectional IPV is indicated by associations with an increased likelihood of IPV-related injuries caused by both men and women (Capaldi & Owen, 2001; Whitaker, Hailey, Swahn, & Saltzman, 2007). Evidence of the involvement of both men and women, rather than only men, as perpetrators emphasizes the need to better understand women's IPV and the life span development of IPV for both men and women, as well as the relationship context and culture in which couples' IPV occurs. IPV has been described as a family system problem that requires attention at the level of the couple (Straus, 2016). Findings support the need of prevention programs with *both* men and women for all forms of IPV, including sexual and bidirectional IPV. Given our findings, we hypothesize that gendered approaches to preventive intervention that only focus on unilateral IPV such as men-to-women IPV and do not take bidirectional IPV into consideration are unlikely to be effective in reducing IPV.

Family-of-origin risk factors predict IPV. A prospective longitudinal design was employed to identify parent behaviors of unskilled parenting and interparent IPV as family-of-origin risk factors of IPV involvement in young adulthood (Low, Tiberio, Shortt, Capaldi, Eddy, & Mulford, 2016; Shortt, Capaldi, Eddy, Owen, Tiberio, Low, Kim, & Jordan, 2016). These family-of-origin risk factors had only small direct effects on later IPV involvement, but heightened the risk for later IPV indirectly by increasing the likelihood of problematic development, as indicated by the mediating effects of antisocial behavior in adolescence. Findings suggest that, in general, effective programs emphasizing the prevention of the

development of externalizing behaviors, or focused on reducing them and ameliorating negative outcomes, also should have a strong influence on reducing the development and elaboration of partner violence over the life span.

Gender differences in mediational effects on IPV. Findings suggest that transmission of IPV may operate somewhat differently for men and women. Antisocial behavior, in light of exposure to interparent IPV and unskilled parenting, was found to be a developmental pathway to later IPV involvement for men. In one set of analyses, mediation was found for women (in light of exposure during early adolescence), but differences were uncovered in terms of the window of risk (i.e., when elaboration of risk was most intense). For men, greater conveyance of risk occurred earlier in development; whereas for women, risk magnified later in development for those who demonstrated externalizing behaviors during adolescence. Some of these differences may be related to differences in the course and prevalence rate of antisocial behavior for girls compared to boys (Maughan, Rowe, Messer, Goodman, & Meltzer, 2004). Additional research involving women's IPV and gender differences is warranted, given the novelty of these findings and importance for translational research.

Peer risk factors predict IPV. Despite the compelling evidence of peer influence on other forms of aggression (Espelage & Holt, 2007; Werner & Crick, 2004) and antisocial and criminal behavior (Dishion & Patterson, 2006; Snyder, Bank, & Burraston, 2005), the role of peers in the development of IPV has been less examined. Using a prospective longitudinal design, this research identified delinquent peer association in adolescence as a mediator between early risk indicated by aggression in childhood (measurement included negative classroom peer nominations and observed aggression on the playground) and later IPV perpetration and victimization in young adulthood (Tiberio, Shortt, Low, Capaldi, & Eddy, 2016). The peer

factors in childhood and adolescence did not increase risk for young adult IPV beyond what could be explained by young adult delinquent peer association. Thus, engagement with antisocial peers is an important developmental step related to later involvement with IPV and a target for prevention.

Proximal partner influences on IPV. The importance of utilizing a dyadic perspective and considering partner influences on IPV was demonstrated in a number of ways. Concurrent partner antisocial behavior and delinquent peer association attenuated mediated effects from childhood risk factors to IPV in young adulthood. These findings suggest that it is not only family and developmental experiences that partners bring to their relationships that are relevant to IPV. Rather, partner influences and relationship factors also contribute to IPV. Lower levels of concurrent relationship satisfaction were related to higher levels of physical and psychological IPV victimization in young adulthood. Regarding partner substance use influences on IPV, women's alcohol and marijuana use was associated with partner (men's) physical IPV and men's alcohol and marijuana use was associated with partner (women's) sexual IPV perpetration (Low, Tiberio, Shortt, Capaldi, & Eddy, 2016). Examining associations between substance use and IPV also provided much needed research on the role of women's substance use in IPV, evidence that polysubstance use was associated with increased involvement in IPV, and support for abstaining from alcohol and/or marijuana use as a protective factor for IPV.

Lack of evidence for LIFT program effects on IPV. Within the context of a randomized controlled trial, many of the participants received a short-term (i.e., 3-month long) prevention program at the start of the LIFT Study. Thus, examining the long-term intervention impacts on IPV and other adult outcomes was an important consideration (Eddy, Feldman, & Martinez, 2016). The LIFT program was a universal preventive intervention developed to

prevent conduct disorder and target key antecedents of conduct problems in the home, classroom, and playground for first and fifth graders. The overlap in risk factors for IPV and risk factors relevant to conduct disorder (e.g., poor parenting practices, Reid, Patterson, & Snyder, 2002) suggested the possibility that the LIFT program might reduce the likelihood of IPV. The LIFT program was found to have immediate impacts on strengthening social and problem-solving skills (Reid, Eddy, Fetrow, & Stoolmiller, 1999) and reducing physical aggression on the playground (Stoolmiller, Eddy, & Reid, 2000) in childhood and longer-term impacts on reducing conduct disorder and substance use in adolescence (DeGarmo, Eddy, Reid, & Fetrow, 2009; Eddy, Barkan, & Lanham, 2015). However, these intervention effects did not carry over into the prevention of physical, psychological, or sexual IPV in young adulthood. Booster sessions may have been necessary to produce a long-term effect of the LIFT program on IPV in young adulthood. Alternatively, programs delivered at a different developmental stage (e.g., early adolescence) or a different prevention program altogether (e.g., a targeted program such as a program specifically including dating violence prevention) may be needed within the curriculum.

IMPLICATIONS FOR CRIMINAL JUSTICE POLICY AND PRACTICE IN THE UNITED STATES

This research has high potential for significant advances in understanding IPV during young adulthood. The characteristics of the sample, the wide scope of repeated assessment, and the prospective nature of research design provide a unique window on the development of IPV. Most notably, this window sheds light on the relatively high prevalence rate of couples' IPV, indicating that IPV may be more common in a community sample than would be indicated from the numbers of individuals involved with criminal justice and with domestic violence agencies. Rather than a behavior solely explained by individual risk and psychopathology, the majority of

IPV in this sample occurred as dyadic and bidirectional behavior with men and women reporting that they both perpetrated and were victimized by IPV in their relationships. Evidence of the involvement of both men and women, rather than only men, indicates the need to include men and women in IPV prevention and intervention efforts in order to maximize program effects. In this regard, it is notable that treatment focused only on men's IPV using traditional models of hypothesized causes has been found to have limited effectiveness (e.g., Babcock, Green, & Robie, 2004). Addressing IPV in all forms through prevention programs across the life span is a public health imperative.

The identification of family-of-origin unskilled parenting and exposure to interparent IPV in childhood and antisocial behavior and engagement with antisocial peers in adolescence as risk factors for IPV suggest that these developmental targets may need to be included in order for IPV prevention programs to be effective. These factors are important in the genesis and maintenance of antisocial behavior and delinquency during childhood and adolescence, which in turn is predictive of antisocial behavior and criminal justice involvement during adulthood. Well-timed preventive interventions at key points in development may reduce not only the cascading effects of early risk and prevent IPV later in life and the costly physical and psychological consequences for couples and their children, but also criminal justice involvement due to a broader set of antisocial behaviors as well. Further, our findings suggest that for those adults already involved in criminal justice, many are likely both victims and perpetrators of IPV. A consideration of the complexities of IPV in the lives of both men and women with this frame is overdue, and developing effective programs that address all sides of the issue seems vital.

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APPENDIX: SCHOLARLY PRODUCTS PRODUCED OR IN PROCESS

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