2017

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Angela M. Kaufman-Parks
Assumption College, am.kaufman@assumption.edu

Alfred DeMaris
Bowling Green State University

Peggy C. Giordano
Bowling Green State University

Wendy D. Manning
Bowling Green State University

Monica A. Longmore
Bowling Green State University

Recommended Citation

Kaufman-Parks, A. M.; DeMaris, A.; Giordano, P. C. ; Manning, W. D. ; and Longmore, M. A. (2017). Parents and Partners: Moderating and Mediating Influences on Intimate Partner Violence Across Adolescence and Young Adulthood. *Journal of Social and Personal Relationships* 34(8): 1295-1323. https://doi.org/10.1177/0265407516676639

HHS Public Access

Author manuscript

J Soc Pers Relat. Author manuscript; available in PMC 2018 December 01.

Published in final edited form as:

J Soc Pers Relat. 2017 December ; 34(8): 1295–1323. doi:10.1177/0265407516676639.

Parents and partners: Moderating and mediating influences on intimate partner violence across adolescence and young adulthood

Angela M. Kaufman-Parks[1], **Alfred DeMaris**[2], **Peggy C. Giordano**[2], **Wendy D. Manning**[2], and **Monica A. Longmore**[2]

[1]Assumption College, USA

[2]Bowling Green State University, USA

Abstract

Prior work examining intimate partner violence (IPV) among young adults often has emphasized familial characteristics, such as parent–child physical aggression (PCPA), and romantic relationship dynamics, such as jealousy and controlling behaviors, but has not considered these two domains simultaneously. Likewise, research examining how these two domains affect IPV perpetration over time for young adults is still limited. Using five waves of data from the Toledo Adolescent Relationships Study ($N = 950$), the present study examined the influence of parent–child relationship factors and romantic relationship dynamics in both their main and interactive effects on IPV perpetration spanning adolescence through young adulthood. Results from random-effects analyses indicated that both familial and romantic relationship dynamics should be taken into account when predicting IPV perpetration. Importantly, these two domains interacted to produce cumulatively different risk for engaging in violence against a romantic partner. Individuals were more likely to perpetrate IPV when their romantic relationship was characterized by verbal aggression if they reported PCPA experiences.

Keywords

Adolescence; child maltreatment; dyadic behavior; emerging adulthood; intergenerational transmission of violence; intimate partner violence; longitudinal; parent; child relationship quality

Past research guided by social learning theory (e.g., Bandura, 1977, 1986; Kalmuss, 1984) has shown exposure to violence in the family of origin to be a fairly consistent predictor of intimate partner violence (IPV) experiences in later life. This violence exposure may be either as a direct victim when experiencing child maltreatment or as an indirect victim

Corresponding author: Angela M. Kaufman-Parks, Assumption College, 212 Kennedy Memorial Hall, 500 Salisbury Street, Worcester, MA 01609, USA. am.kaufman@assumption.edu.

Authors' note

This research was presented at the annual American Society of Criminology meeting in November 2015 in Washington, D.C. The opinions, findings, and conclusions or recommendations expressed in this publication are those of the authors and do not necessarily reflect the official views of the National Institutes of Health.

through the witnessing of violence and aggression that occurs between parents (e.g., Renner & Whitney, 2010; Simon & Furman, 2010; Swinford, DeMaris, Cernkovich, & Giordano, 2000). For example, in assessing the direct effects of violence exposure among a sample of 608 adults aged 22–30, Swinford, DeMaris, Cernkovich, and Giordano (2000) found that abusive punishment in childhood (e.g., "hit with a closed fist," "thrown against a wall") significantly increased the propensity to perpetrate violence against a romantic partner in later life. Relatedly, results from a study of high school seniors demonstrated that adolescents' perceptions and appraisals of inter-parental conflict (e.g., "My parents have pushed or shoved each other during an argument") were related to the amount of conflict in their own romantic relationships (Simon & Furman, 2010). Such findings can be understood in recognizing that, as the family is one of individuals' first and main socializing agents, the relationships between parents and between parents and their children provide models for how individuals should behave in relationships with others. Through processes of observation, learning, and reinforcement, children exposed to violence may recognize that, in a global sense, IPV or coercive treatment of children is not preferred or desirable behavior, but under certain circumstances, this is an understandable way of interacting with others and dealing with conflict. In turn, this heightens the child's own risk of drawing on these behavioral repertoires in their own relationships.

Yet, prior empirical work has demonstrated that the link between family of origin violence and later IPV occurrences is far from deterministic (e.g., Fang & Corso, 2008; Schafer, Caetano, & Cunradi, 2004; Smith, Ireland, Park, Elwyn, & Thornberry, 2011). Results based on longitudinal, nationally representative data have shown that physical abuse during childhood is associated with young women's IPV perpetration, yet is associated only indirectly with young men's IPV perpetration via youth violence (Fang & Corso, 2008). Likewise, some evidence has suggested that while the effects of family of origin violence on IPV perpetration may be significant in early adulthood, their influence dissipates once individuals reach middle adulthood (Smith et al., 2011). This variation in outcomes thus suggests that additional antecedents outside the realm of family violence need to be taken into account. Accordingly, a growing body of literature has identified a number of dynamics within individuals' romantic relationships that may serve as predictors of IPV experiences. These dynamics include jealousy and controlling behaviors (e.g., Caldwell, Swan, Allen, Sullivan, & Snow, 2009), mistrust (e.g., Buck, Lenaars, Emmelkamp, & Van Marle, 2012), infidelity (e.g., Giordano, Soto, Manning, & Longmore, 2010), verbal aggression (e.g., Hamby & Sugarman, 1999), and arguments or disagreements (e.g., DeMaris, Benson, Fox, Hill, & Van Wyk, 2003). Undoubtedly, the examination of relationship dynamics vastly improves our understanding of relationship violence. Yet, in general, these studies examine relationship dynamics in place of, not in addition to, the effects of familial characteristics on IPV. Relatedly, not all individuals who experience such negative dynamics as infidelity, jealousy and control, and verbal aggression in their romantic relationships report experiencing physical violence, again suggesting the need to account for other factors.

Drawing on traditional social learning theory (Bandura, 1977, 1986; Kalmuss, 1984) and two reformulated versions of the theory specific to violence between intimate others (Capaldi, Shortt, & Kim, 2005; Riggs & O'Leary, 1989), the present study examined both family of origin violence and romantic relationship dynamics as predictors of IPV

perpetration. Given that the family environment entails more than simply the presence or absence of abuse, we added to this literature by including an additional familial characteristic, parent–child relationship quality (PCRQ), which may further affect how individuals view their relationships with others. Likewise, in recognizing that individuals' relationships in multiple domains are affected by their socialization experiences within the family, the present study sought to integrate what have developed as two largely independent research traditions within the study of IPV. Specifically, we examined both the main and interactive effects of parent–child and romantic relationship dynamics on IPV perpetration, guided by the notion that how individuals react to negative dynamics in their romantic relationships may be dependent on their family of origin experiences.

Past research has demonstrated that both familial and romantic relationships may vary over time. As individuals age, they mature, experience a variety of life course transitions (i.e., becoming a legal adult, leaving the parental home, starting a career and family of one's own), learn from existing relationships and form new ones, all of which may differentially affect the likelihood of IPV experiences (e.g., Aquilino, 1997, 2006; Carbone-Lopez, Rennison, & Macmillan, 2012; Thornberry, Ireland, & Smith, 2001). In understanding that interpersonal relationships are subject to both continuity and change, we utilized five waves of longitudinal data to assess IPV perpetration experiences at different stages of the life course and across time. Importantly, the present study also assessed these IPV experiences among adolescents and young adults, a group of individuals who remain largely unexamined in the longitudinal literature on IPV perpetration.

PCRQ and IPV

Less extensively studied than family of origin violence, especially in reference to IPV, is the overall relationship quality between the parent and the child. As illustrated by prior research, PCRQ often encompasses the manner in which parents help and support their child (Hair, Moore, Garrett, Ling, & Cleveland, 2008); how caring, controlling, or rejecting they are toward their child (Palazzolo, Roberto, & Babin, 2010); how much time parents spend with their child (Miller, Gorman-Smith, Sullivan, Orpinas, & Simon, 2009); and how much the child feels respected, trusted, and accepted by parents (Tajima, Herrenkohl, Moylan, & Derr, 2010). From a social learning perspective, individuals may learn how to view and interact with others based on the quality of their relationships with parents, just as they learn how to view violence based on violence they experience via their parents.

Prior research has demonstrated that individuals who describe their families as unloving, unrewarding, or unsafe may come to view other significant relationships in this light. These negative relationship ideas and beliefs, in turn, often lead to relationships defined by more conflict and other problematic characteristics (Busby, Holman, & Walker, 2008; Wekerle et al., 2009). In particular, results from a sample of over 30,000 adults found that individuals who reported more negative family of origin environments (e.g., disagreeing with the statement "we had a loving atmosphere in our family") were more likely to report communicating in a negative fashion (e.g., criticizing or verbally attacking) with their romantic partner. These negative communication styles, in turn, were positively associated with respondents' reports of IPV perpetration (Busby et al., 2008). Moreover, PCRQ may

matter independent of, and perhaps more than, childhood maltreatment in predicting IPV in later adolescence and young adulthood (Dutton, 1994; Dutton, Starzomski, & Ryan, 1996; Wekerle et al., 2009). Examining predictors of spousal abuse among a sample of men aged 17–65, Dutton, Starzomski, and Ryan (1996) found that parental rejection was the strongest predictor of spousal abuse, surpassing the effects of both parent-to-child and parent-to-parent physical abuse in the family of origin. It is hypothesized that, unlike what may be isolated incidents of parental physical violence, poor PCRQ often affects the adolescent's entire view of self. When children are made to feel that their thoughts, feelings, and behavioral choices are not valued or validated, they become less assertive and confident in themselves and in their ability to form relationships with others.

Dyadic and contextual influences on IPV

Knowing that individuals' attitudes and behaviors are not solely products of familial background experiences, it is important to consider relational contexts outside the family. Specifically, in analyzing violence occurring between romantic partners, it is important to examine partner interactions. Building on both social learning and conflict theories, the background–situational model (Riggs & O'Leary, 1989) incorporates a range of romantic relationship dynamics in addition to the more traditionally measured family of origin violence predictors. From a social learning standpoint, it includes background factors for each partner. From a conflict perspective, it includes situational factors that account for both romantic partners' behaviors and the context of the romantic relationship as a whole. Background factors include traditional social learning theory correlates, such as a history of childhood maltreatment, witnessing interparental aggression, prior use of aggression, and acceptance of aggression as an appropriate response to conflict. Situational factors encompass a broad array of more conflict-oriented correlates, as well as relationship factors including union status and duration (Luthra & Gidycz, 2006; Riggs & O'Leary, 1989).

More recently, and continuing to emphasize a broader conceptualization of IPV, a life systems perspective on violence occurring between romantic partners has been developed. Known as the dynamic developmental systems (DDS) model (Capaldi et al., 2005), this approach theorizes that IPV is the result of individual, dyadic, and contextual influences that both change and interact with each other across stages in the life course. At the individual level, the model includes each partner's personality characteristics, psychopathology, and the individual's ongoing social influences, such as parents and peers, and developmental stage. At the contextual level, factors that may affect violence more proximally include substance use and the specific cause that led to the violent episode. Finally, dyadic influences focus primarily on interaction patterns between romantic partners, as well as factors affecting the context of the relationship as a whole (e.g., relationship length).

Each of these models thus follows traditional social learning theory, allowing for the importance of family in setting the stage and socializing individuals with respect to how to behave in relationships. Additionally, significant others outside the family of origin are influential, especially those with whom individuals are in romantic relationships. Yet, empirical tests of the DDS and background–situational models have been limited. Most past

research has either ignored these approaches or in some way failed to account for a broad array of factors that might contribute to IPV.

Previous literature has identified a number of relationship dynamics that may serve as predictors of violence in intimate relationships. These include jealousy and controlling behaviors (e.g., Caldwell et al., 2009), mistrust (e.g., Buck et al., 2012), infidelity (e.g., Giordano et al., 2010), verbal aggression (e.g., Hamby & Sugarman, 1999), and arguments or disagreements (e.g., DeMaris et al., 2003; Straus, Gelles, & Steinmetz, 1980). Moreover, these relationship dynamics not only affect the likelihood of experiencing IPV directly, but their effect may also be amplified by family of origin violence and poor PCRQ.

As maintained by Wolfe, Scott, Wekerle, and Pittman (2001) in their study of 1,419 high school students, individuals who experience family of origin violence, as measured by child maltreatment, are, as a consequence, more likely to illustrate poor interpersonal adjustment in the form of fear, mistrust, and hostility. They are also likely to evidence the effects of such violence in future relationships with others. Specifically, family of origin violence often influences individuals and their beliefs and worldviews about relationships. In turn, this may be limiting to the ability to develop and sustain healthy, non-violent relationships with others (Wolfe, Scott, Wekerle, & Pittman, 2001). Exposure to violence in the family of origin often leads to poor attachment styles, demonstrated by fears of abandonment and beliefs about partner unavailability, which further increase the likelihood of experiencing IPV (Caldwell et al., 2009). Individuals with deleterious familial backgrounds may be more likely to evidence negative dynamics in their relationships, given their limited prior experience in dealing with others in healthy, non-violent ways. If so, romantic relationship dynamics would mediate the effects of familial background on IPV perpetration.

In addition to parental violence and PCRQ affecting the likelihood of IPV via intervening relationship dynamics, there are theoretical reasons to expect that parental violence and PCRQ may further condition the deleterious effects of such dynamics. The extent to which jealousy, controlling behavior, or infidelity might precipitate physical aggression against a partner may well hinge on individuals' family backgrounds. Those whose parents used physical discipline regularly or who otherwise had poor relationships with parents may be more sensitive to relationship dysfunction. They should therefore more readily resort to physical aggression—a behavior modeled from parents—when they feel threatened by perceived partner misbehavior. According to the aforementioned arguments, then, it is possible that individuals with experiences of familial violence or poor PCRQ, compared to those with more positive familial backgrounds, may be differently affected by various dynamics of their romantic relationships. If so, family violence and poor PCRQ, in turn, would be expected to amplify the effect of negative relationship dynamics in increasing the likelihood of IPV.

Sociodemographic risk factors of IPV

Past research on familial characteristics and romantic relationship dynamics has found a number of sociodemographic factors that are important to take into account when predicting IPV. Individuals in relationships of longer duration were more likely to report experiences of

psychological and physical aggression (Baker & Stith, 2008; Giordano et al., 2010). Similarly, individuals in cohabiting and marital relationships, compared with dating, may be more likely to experience violence (Cui, Ueno, Gordon, & Fincham, 2013). Individuals' own sociodemographic characteristics may influence the likelihood of IPV reports. Past empirical evidence has illustrated an inverse relationship between both age and socioeconomic status and IPV (Field & Caetano, 2004; Franklin & Kercher, 2012), whereby individuals who were older, employed, and reported higher income were less likely to have perpetrated violence against a romantic partner. Likewise, White individuals demonstrate, on average, lower rates of physical violence in their romantic relationships than do individuals of other racial–ethnic categories (Capaldi, Knoble, Shortt, & Kim, 2012). Importantly, given the greater propensity for a number of deleterious outcomes to occur in the context of lower socioeconomic status, racial differences in IPV tend to dissipate once factors such as income are accounted for (Rennison & Planty, 2003). When focusing on IPV occurring during young adulthood, women have also been found to perpetrate violence against a romantic partner at rates equal to or higher than males (Capaldi, Kim, & Shortt, 2007; Capaldi et al., 2012; Cui et al., 2013). Finally, some empirical research has demonstrated that individuals raised in single-parent households, compared with other family types, may be more likely to report IPV (Foshee, Benefield, Ennett, Bauman, & Suchindan, 2004).

Prior literature has illustrated the importance of taking into account a number of correlates associated with aggression, which may affect violence-related choices in individuals' romantic relationships. Although not key independent variables, the addition of these measures aids in further parsing out any heterogeneity in individuals' likelihood of experiencing IPV. This is especially useful considering that past psychological research has indicated that some individuals may be predisposed to violence despite the presence or absence of other risk factors (i.e., family of origin violence, PCRQ, and romantic relationship dynamics; Burt & Klump, 2012; Silberg, Maes, & Eaves, 2012). These aggression-related measures include problematic personality and behavioral characteristics in childhood and adolescence, as well as individuals' own delinquent and deviant behaviors outside the romantic relationship realm (e.g., Capaldi & Clark, 1998; Cui et al., 2013; Swinford et al., 2000).

The inclusion of sociodemographic characteristics and individual-level risk for aggression more generally aligns well with the previously outlined DDS and background–situational models of IPV guiding the present study (Capaldi et al., 2005; Riggs & O'Leary, 1989). Likewise, in following traditional social learning theory, which posits that violence is a learned behavior, characteristics encompassing parental delinquency as teenagers and parental deviance and criminality as adults are important to consider when examining individuals' own violent attitudes and behaviors (e.g., Bijleveld & Farrington, 2009; Thornberry, Freeman-Gallant, & Lovegrove, 2009).

Current investigation

To address limitations of previous research, the current study has contributed to the literature in several ways. With a central focus on social learning theory, the present study allowed for the importance of family-of-origin violence exposure in influencing IPV perpetration, and

we included a measure of PCRQ to further assess the effects of the familial environment on violence experienced in romantic relationships. *We expected that exposure to familial violence would be positively associated, and greater PCRQ negatively associated, with perpetration of violence*.

The present study incorporated the background–situational and DDS models of IPV to bring together two largely disconnected literatures—that of familial effects and romantic relationship dynamics. We expected that as each of the negative relationship dynamics increased in severity or frequency, the likelihood of individuals perpetrating IPV would increase. Yet, guided by the belief that individuals' behaviors and attitudes in multiple domains are affected by their socialization experiences within the family, we expected that individuals would be differentially affected by negative dynamics in their romantic relationships. *We expected that respondents who reported family violence exposure and poor PCRQ would be more likely to perpetrate IPV when such dynamics as jealousy and control, verbal aggression, or infidelity arose in their romantic relationships*. Relatedly, individuals with family violence exposure and poor PCRQ would be most likely to evidence negative dynamics in their romantic relationships; *in other words, we expected that romantic relationship dynamics would mediate some of the association between parent–child relationship factors and IPV perpetration experiences*.

We utilized five waves of longitudinal data to assess IPV perpetration reports over time, which allowed us to model the reality that interpersonal relationships, whether familial or romantic, exhibit both continuity and change across the life course. As a result, individuals' risk for violence in romantic relationships may vary according to the changing nature of these relationships. The longitudinal component of this study built upon a relatively sparse literature examining IPV perpetration experiences in adolescence and young adulthood at more than one point in time.

It is additionally important to note that information was available about victimization as well as perpetration of IPV in the present data. Due to the strong conceptual focus on social learning processes, our motivation here was directed toward how familial and romantic relationship dynamics influenced variability in individuals' own aggressive behavior within the romantic realm. Thus, we limited our focus to IPV perpetration. However, acknowledging that victimization experiences undoubtedly shape a more complete understanding of violence occurring in romantic partnerships (Caetano, Ramisetty-Mikler, & Field, 2005; Caetano, Vaeth, & Ramisetty-Mikler, 2008; Capaldi et al., 2007), models were also run with IPV victimization as the outcome of interest. Although not presented here, supplemental models relying on this alternative outcome produced a similar pattern of results and reinforced the findings presented below. These results are available from the senior author upon request.

Methods

The sample

We used five waves of data from the Toledo Adolescent Relationships Study (TARS) in the current investigation. The TARS is based on a stratified random sample of 1,321 adolescents

in the 7th, 9th, and 11th grades in Lucas County, Ohio, in 2001, as well as a separate interview with a parent/guardian. Devised by the National Opinion Research Center, the stratified random sample included over-samples of Black and Hispanic adolescents, and school attendance was not a requirement for inclusion in the study. The geographic area of Lucas County is similar to estimates of race and ethnicity, family income, and education to the national population based on 2010 U.S. Census data.

Data were originally collected to investigate adolescents' romantic and fertility-related behaviors and to examine how parents, peers, and romantic partners influenced these behaviors. Follow-up data were collected in 2002, 2004, 2006–2007, and 2011–2012, when respondents were, on average, 16, 18, 20, and 25 years old, respectively. At Wave V, there were 1,021 respondents, a retention rate of 77% from Wave I.

We restricted the analytic sample based on the requirements of the research questions. Focusing on the IPV experiences of adolescents and young adults, the sample consisted of those individuals reporting on a romantic partner in at least one wave of data (N = 979). Specifically, 987 respondents reported on a romantic relationship at Wave I, 774 at Wave II, 993 at Wave III, 1,006 at Wave IV, and 950 at Wave V. We further restricted the sample due to missing data. We used listwise deletion for individuals who were missing on time-stable single-item indicators or more than half the items in time-stable multiple-item measures. We used listwise deletion because it is more robust to violation of missing at random among the independent variables (Allison, 2002). Individuals remained in the sample if they were missing on time-varying covariates as long as they had at least one wave's worth of data, whereby each wave of data was included as a separate case in multivariate analyses. These restrictions resulted in a final analytic sample of N = 950 (443 male and 507 female) respondents and, correspondingly, 4,750 person-period observations.

Measures

Dependent variable

IPV perpetration: Four items from the revised Conflict Tactics Scale (Straus, Hamby, Boney-McCoy, & Sugarman, 1996) asked respondents: "During this relationship, how many times have you [how many times did you], " … throw something at (partner)?" "… push, shove, or grab (partner)?" "… slap (partner) in the face or head with an open hand?" and "… hit (partner)?" Response categories ranged from "1 = never" to "5 = very often." However, each measure was skewed, in that the majority of respondents reported never perpetrating any of these acts. Hence, respondents were coded 1 if they reported having perpetrated any of these acts on a partner and 0 otherwise, resulting in a binary response variable for IPV perpetration (Wave I α = .87, Wave II α = .90, Wave III α = .91, Wave IV α = .88, and Wave V α = .99).

Independent variables

Sociodemographic correlates: Nine measures accounted for respondents' and their parents' sociodemographic background. Gender was a dichotomous measure, with male serving as the contrast category. Three dichotomous variables represented the respondents' racial–ethnic status, which included non-Hispanic White, serving as the contrast category, non-

Hispanic Black, Hispanic and "other" race–ethnicity. Family structure, which assessed the respondent's family structure during childhood (i.e., at the Wave I interview), included three dichotomous variables stepfamily, single-parent, and any "other" family type, with two biological parents serving as the contrast category. Residency status, a dichotomous measure asked at all fives waves, assessed whether respondents lived in the same home as their parent(s). We coded respondents living with one or both parents, as well as any other family members, as residing in the parental home (1) and 0 otherwise. Age was a continuous measure at all five waves, when respondents were, on average, 15, 16, 18, 20, and 25 years, respectively.

We assessed socioeconomic status with four measures. Three pertained to respondents' parents', usually mothers', socioeconomic status, and one referred to respondents' socioeconomic status. The first measure asked about parents' highest level of education completed, as reported in the Wave I parent questionnaire, and was represented by two dichotomous variables: high school graduate, serving as the contrast category, less than a high school degree, and college graduate. The second, based on parents' employment status at the Wave I interview, was a dichotomous variable, where 1 indicated current employment and 0 otherwise. The third item concerned public assistance and asked whether the parent currently received any kind of government or public assistance. A response of 0 indicated no assistance was received and 1 otherwise. The fourth measure was an age-appropriate measure of respondents' own socioeconomic status, referred to as "gainful activity" (Alvira-Hammond, Longmore, Manning, & Giordano, 2014), reflected as being in school or working, measured at all five waves. Those respondents currently attending school or employed full-time were considered gainfully active and coded 1, while others were considered not gainfully active and coded 0.

Parent–child relationship factors: Parent–child physical aggression (PCPA), a dichotomous variable at each wave, measured whether the respondents' parents pushed, slapped, or hit them during arguments and disagreements. Respondents exposed to PCPA were coded as 1, and 0 otherwise. Seven items assessed PCRQ. Respondents reported their extent of agreement with five statements: "My parents give me the right amount of affection," "My parents trust me," "My parents sometimes put me down in front of other people" (reverse coded), "My parents seem to wish I were a different type of person" (reverse coded), and "I feel close to my parents." Responses ranged from "1 = strongly disagree" to "5 = strongly agree." Two additional items assessed the frequency of verbal aggression between respondents and parents: "In general, how often do you and your parents yell or shout at each other because you are mad" (reverse coded) and "… call each other names or insult each other" (reverse coded). Responses ranged from "1 = never" to "6 = two or more times per week." Given different response scales across the 7 items, we standardized the items and then combined them, resulting in one continuous measure of PCRQ at each wave (Wave I α = .82, Wave II α = .82, Wave III α = .82, Wave IV α = .82, and Wave V α = .83).

Romantic relationship dynamics: Respondents' jealousy and control referred to their level of agreement with two statements: "I sometimes try to control what my partner does" and

"When my partner is around other guys/girls, I get jealous." Partners' jealousy and control was based on respondents' level of agreement with three statements: "My partner sometimes wants to control what I do," "When I am around other guy/girls, my partner gets jealous," and "My partner is jealous of my relationships with my friends." Responses ranged from "1= strongly disagree" to "5 = strongly agree" on all 5 items, which we combined for a possible range of 5–25, with higher scores indicating greater jealousy and control (Wave I α = .74, Wave II α = .76, Wave III α = .75, Wave IV α = .76, and Wave V α = .75).

We measured respondents' self-reports of their own and their partners' infidelity with 2 items: "Since your relationship with (partner) started, 'How often has your partner seen another guy/girl' and 'How often have you seen another guy/girl?" Responses to both items ranged from "1 = never" to "5 =very often," which we combined to form one measure with a possible range of 2–10. Higher scores indicated relationships characterized by more frequent infidelity (Wave I α = .70, Wave II α = .83, Wave III α = .81, Wave IV α = .72, and Wave V α = .66).

We measured respondents' self-reports of their own and their partners' frequency of verbally aggressive behaviors with 6 items. Respondents' verbal aggression referred to the following items: "During this relationship how often have you, 'ridiculed or criticized your partners' values or beliefs?" "… put down your partner's physical appearance" and "… put your partner down in front of other people?" Three corollary measures were used for partner's verbal aggression against the respondent. Responses ranged from "1 = never" to "5 = very often." Combined, they formed one measure of verbal aggression with a possible range of 6–30, where higher scores indicated more frequent verbal aggression (Wave I α = .83, Wave II α =.83, Wave III α = .85, Wave IV = .84, and Wave V α = .85).

Mistrust referred to respondents' level of agreement with the following statement: "There are times when my partner cannot be trusted." We included only respondents' self-reports of mistrust because, unlike the other dynamics, trust is more internal in nature and, as such, is more difficult to assess for someone else. Responses ranged from "1 = strongly disagree" to "5 = strongly agree," with higher scores reflecting greater mistrust. We assessed the frequency of arguing with the following item: "How often do you and your partner have disagreements or arguments?" Responses ranged from "1 = never" to "5 = very often," with higher scores indicating more frequent arguments.

Relationship-specific factors: We measured relationship duration with a continuous measure, with responses ranging from "1 = less than a week" to "8 = a year or more." Relationship status assessed whether the respondent was in a dating, cohabiting, or married relationship. We included two dichotomous variables, "cohabiting" and "married," with dating serving as the comparison category. Whether respondents reported on a current or past romantic relationship was measured dichotomously, with a past relationship serving as the comparison category.

Background aggression factors: We included 12 measures to assess predisposition to violence for reasons other than PCPA, PCRQ, or romantic relationship dynamics. Two variables assessed respondents' own antisocial characteristics, and the remaining 10

variables examined parents' antisocial behavior. Table A1 in the Appendix lists each of these variables, the items used to construct them, and how they were coded.

Data analysis

The current study utilized random-effects logistic regression models to examine the independent and interactive effects of parent–child and romantic relationship dynamics to predict IPV perpetration. Random-effects analysis is the optimal method to address these questions, rather than traditional logistic regression models, as it accounts for the dependence that occurs in taking responses from the same individuals over time. By adding the equivalent of a subject-level random intercept to the model, random-effects regression effectively models the serial correlation and heteroscedasticity attendant to panel data. In this manner, coefficient standard errors and statistical tests are ensured to be correct (Allison, 2005, 2009). The random intercept in question represents the myriad of unmeasured factors that lead individuals' response scores to be correlated over time, net of model regressors. This approach makes the key assumption that any such factors are uncorrelated with all model regressors. This is a restrictive assumption that may not be correct. An alternative model, fixed-effects logistic regression, does not make this assumption. Rather, it assumes unmeasured factors, or unmeasured heterogeneity, are correlated with one or more model regressors. If this is indeed the case, random-effects coefficients will be biased. To assess which formulation was correct, we employed Allison's (2005, 2009) hybrid-model approach to test for significant differences between random- and fixed-effects coefficients. The test was nonsignificant, suggesting any unmeasured factors are uncorrelated with model regressors. Hence, we utilized the random-effects approach in our current analyses.

Results

Descriptive statistics

Table 1 presents descriptive statistics for IPV perpetration and all time-varying characteristics of the current sample. Results indicated that IPV perpetration experiences were reported by approximately 11–22% of respondents across the five waves of data, with the largest number of reports occurring in Wave IV, when respondents were on average 20 years old. Likewise, between 11% and 22% of individuals reported experiencing PCPA over time. As expected, respondents also reported less PCPA as they aged, most likely a result of reaching adulthood and leaving the parental home. Since PCRQ was a summed score of standardized items, mean scores were approximately zero, and illustrated little variation across time. To gain a better understanding of the change in PCRQ across time, in Table A2, found in the Appendix, we included the mean scores of all 7 items used to construct PCRQ before they were standardized. These scores demonstrated that, on average, PCRQ either remained stable or was slightly more positive over time.

In terms of romantic relationship dynamics, respondents reported moderate levels of jealously and control, low levels of infidelity and verbal aggression, and moderate amounts of arguments and mistrust in their relationships across time. Further, most individuals reported on a past relationship in earlier waves but increasingly reported on a current

relationship in later waves. This is consistent with the notion that individuals' relationships are in greater flux at earlier ages when they are first becoming romantically involved. Similarly, most respondents reported on dating relationships at all five waves, although the percentage reporting on cohabiting and married relationships increased substantially in Waves IV and V when respondents were on average 20 and 25 years of age, respectively. On average, relationship duration was 2–5 months at Waves I and II, 6–8 months at Wave III, and 9 months to a year at Waves IV and V.

Turning to individual-level factors, which vary across time, the mean delinquency score was very low and exhibited little variation across the five waves. As expected, most respondents lived with their parents at Wave I, while the majority had moved out of the parental home by Wave V. The majority of individuals were gainfully active at all five waves, although this percentage decreased sequentially over time, as respondents finished school and navigated the world of employment. Finally, results showed that respondents were on average 15, 16, 18, 20, and 25 years of age across the five waves of data.

Table 2 presents time-stable characteristics of the current sample. In regard to socio-demographic characteristics, there were slightly more women than men in the sample (53 and 47%, respectively). The majority of respondents reported their racial–ethnic status as White (66%), although there were significant portions of Black (21%) and Hispanic (11%) respondents. More than half of respondents were raised in two-biological parent households (55%), although many reported on single-parent (21%), stepparent (13%), and other family types (11%) at the Wave I interview. On average, parents were high school graduates, employed, and were not receiving government assistance at the time of the Wave I interview. Most parents reported low levels of delinquency as juveniles. As adults, the majority reported never using drugs to get high or their child having a parent in prison (either themselves or the child respondent's other parent), while the average parent reported using alcohol to get drunk once or twice a year.

In assessing a variety of background aggression factors, parents reported that they and their spouse or partner "sometimes" argued (interparental conflict) and that they told their child "a little" about such arguments (conflict exposure). On average, parents reported their children as being not very problematic, with a mean score of 9.2 on a scale ranging from 4 to 20. Finally, using the young adults' own reports of their childhood, results showed low levels of conflict in the family of origin.

Multivariate results

Table 3 presents random-effects logistic regression models for IPV perpetration. The "zero-order" column shows the results of regressing IPV on one predictor at a time to assess the bivariate association between each predictor and IPV. The other three columns, Models 1–3, show the multivariate results. Model 1 presents the effects of the focal parental variables plus controls. Model 2 adds the relationship dynamics to the model, and Model 3 adds the interactions between focal parental variables and relationship dynamics.

In Model 1, both PCPA and PCRQ significantly predicted IPV perpetration reports, albeit only weak-to-moderate in their predictive strength, and operated in the expected directions.

Respondents who reported PCPA experiences had about 38% (β = .320, p =.028) greater odds of perpetrating violence against a romantic partner, while each unit increase in PCRQ reduced these odds by approximately 6% (β = −.058, p =.000). In terms of characteristics specific to the romantic relationship, individuals reporting on cohabiting relationships had about 52% greater odds of perpetrating IPV, compared to individuals in dating relationships, while each unit increase in relationship duration increased the odds of IPV by about 30%.

Examining respondent characteristics that vary over time, each year increase in age lowered the odds of perpetrating IPV by about 9%, while residing in the parental home led to a 5% reduction in such odds. As expected, respondents' delinquent behaviors had a large and positive association with IPV perpetration, where each unit increase in delinquency increased the odds of being violent toward a romantic partner by about 69%. In Model 1, consistent with some prior research, women's odds of being violent toward a romantic partner were approximately 58% higher than men's odds. Black individuals, as compared to White individuals, experienced increased odds of IPV perpetration by about 82%. Although significant at the zero-order, most other time-stable correlates were not statistically significant in multivariate analyses. The only exceptions included parental socioeconomic status, as measured by education, and respondents' own reports of conflict in the family of origin, as measured by family conflict tactics. Specifically, as compared to parents who have a high school diploma, respondents whose parents are college graduates experienced an approximately 32% reduction in the odds of IPV perpetration. Conversely, for each unit increase in family conflict tactics, respondents' odds of perpetrating IPV increased by approximately 5%.

Model 2 added respondents' romantic relationship dynamics, and results indicated that, consistent with expectation, all five dynamics were significantly and positively associated with IPV perpetration. Once all other correlates, with the exception of interaction terms, were included in the model, each unit increase in jealousy and control led to an 8% (β =.078, p =.000) increase in the odds of IPV perpetration, while each unit increase in relationship infidelity increased these odds by about 13% (β =.126, p =.001). Respondents' reports of verbal aggression and the frequency of arguments in their relationships demonstrated the largest effects on experiences of IPV perpetration, with each unit increase resulting in increased odds of approximately 40% (β =.338, p =.000) and 38% (β = .326, p = .000), respectively. Finally, for each unit increase in reports of partner mistrust, the odds of perpetrating violence against a romantic partner increased by 17% (β =.153, p =.006).

Importantly, the inclusion of relationship dynamics eliminated the statistical significance of both PCPA and PCRQ from Model 1. These findings led to the conclusion that romantic relationship dynamics may serve as better predictors of IPV perpetration than more distal experiences occurring outside the romantic dyad. The inclusion of relationship dynamics reduced the effects of both residing in the parental home and family conflict tactics from Model 1.

The final model, Model 3, added interaction terms between both PCPA and PCRQ and romantic relationship dynamics. These interaction terms allowed for the analysis of whether poor PCRQ and PCPA experiences amplified the already positive effects of negative

relationship dynamics on IPV perpetration reports. While both familial and romantic relationship domains are important to consider when predicting IPV perpetration, overall, parent–child relationship factors appeared to moderate few of the effects of romantic relationship dynamics. Only the interaction between PCPA and verbal aggression (i.e., ridiculing, criticizing, and putting down romantic partners) was statistically significant (β =. 130, p =.018). The result suggested that the positive effect of verbal aggression in the relationship on IPV was even stronger the greater respondents were exposed to PCPA. However, importantly, each of the romantic relationship dynamics was significantly associated with PCPA and PCRQ at the bivariate level and operated in the expected direction. Table A3, found in the Appendix, illustrates the correlations between each of these measures.

Discussion

In recent years, researchers have demonstrated that family of origin violence is not deterministic of later IPV reports. Accordingly, focus on predictor variables has largely shifted away from the family and toward the romantic dyad. Yet choosing to focus on either of these domains while excluding the other is problematic. Like studies on family of origin violence, studies on relationship dynamics leave great variability in IPV reports, suggesting other factors need to be examined. Focusing exclusively or primarily on romantic relationship dynamics limits our understanding of the potential role played by familial characteristics. Accordingly, we sought to examine how two aspects of family life, PCPA (i.e., physical abuse) and PCRQ, along with a range of romantic relationship dynamics, contributed to IPV over an 11-year period spanning adolescence and young adulthood. The longitudinal component of this study is also particularly noteworthy. Measuring family and romantic relationship characteristics at multiple points in time allowed for the recognition that individuals' relationships with parents and romantic partners can and do often change. These changes, in turn, may further affect the likelihood that individuals will see violence as acceptable behavior.

Supporting findings from prior research (e.g., Renner & Whitney, 2012; Simon & Furman, 2010), initial analyses revealed that exposure to violence in the family of origin, as measured by PCPA, was a significant predictor of adolescent and young adult experiences with IPV perpetration. This finding is consistent with the possibility that individuals exposed to PCPA often develop an expectation for violence in their romantic relationships or feel violence is necessary to maintain control and power in their lives (e.g., Wolfe et al., 2001). Contributing to the literature on adolescent and young adult experiences with IPV, the findings presented here also demonstrate that PCRQ was a significant, albeit modest, and independent predictor of violence in romantic relationships, when both PCPA and controls were included in regression models. This provides further support for the notion that individuals may learn how to view and interact with others based on the quality of their relationships with parents, just as they learn how to view violence based on violence they experience via their parents.

Yet, despite their initial importance, the statistical significance of both PCPA and PCRQ was eliminated when dynamics of respondents' romantic relationships were included in the prediction of IPV reports. In line with prior studies on IPV (e.g., DeMaris et al., 2003;

Giordano et al., 2010), we found that each of the romantic relationship dynamics (e.g., jealousy and control, verbal aggression) was positively and significantly associated with IPV perpetration during adolescence and young adulthood. Importantly, taken together, the effect sizes of romantic relationship dynamics were significantly larger than those of both PCPA and PCRQ in earlier models. These results led to the potential conclusion that experiences more proximal to the romantic dyad (e.g., infidelity and verbal aggression) served as better predictors of IPV perpetration reports than those more distal in nature (e.g., family of origin experiences). However, the stronger effect of romantic relationship dynamics may be due to measurement differences, where such dynamics are measured more from a behavioral standpoint, opposed to measures such as PCRQ, which was assessed on a more global and emotional level. In either case, such findings do not diminish the utility of continuing to examine familial factors.

That romantic relationship dynamics served to mediate the relationship between parent–child relationship factors and IPV perpetration suggests that individuals with poor PCRQ and PCPA experiences were also more likely to evidence those negative dynamics in their romantic relationships, which increased the risk for becoming violent toward a romantic partner. This conclusion is consistent with past research findings demonstrating that individuals with deleterious familial backgrounds are more likely to evidence negative relationship beliefs, exhibit poor attachment styles, and have difficulty maintaining healthy, nonviolent relationships with others (Busby et al., 2008; Caldwell et al., 2009; Wolfe et al., 2001). Further, these characteristics, in turn, are likely to precipitate resorting to IPV in conflicts with intimate partners. Thus, while romantic relationship dynamics may serve as better predictors of IPV perpetration reports, parent–child relationship factors may help to explain how such negative dynamics come to evidence themselves in romantic relationships in the first place. In line with the DDS and background–situational models of IPV (Capaldi et al., 2005; Riggs & O'Leary, 1989), potential mediating relationships such as these underscores the utility of conceptualizing IPV more broadly in future research efforts.

Relatedly, we expected that romantic relationship dynamics would be moderated by parent–child relationship factors, acknowledging that not all individuals who experience negative relationship dynamics go on to perpetrate IPV. We found partial support for this hypothesis. The effect of verbal aggression in romantic relationships was conditioned by PCPA. Specifically, the findings presented here suggest that individuals exposed to PCPA may have a lower tolerance for verbal aggression in their romantic relationships, leading to a higher likelihood of IPV perpetration in the context of verbal aggression, compared to those not exposed to PCPA. The exact way in which this interaction operates was not tested in the present study. However, one potential explanation is that verbal aggression may represent an imminent threat of physical victimization for those with PCPA experiences. This threat, in turn, may lead individuals to act out violently due to feelings of fear and anxiety or in precipitating the need for self-defense. This line of reasoning further supports the DDS and background–situational models of IPV (Capaldi et al., 2005; Riggs & O'Leary, 1989) and the continued importance of including both familial and romantic relationship factors in the prediction of IPV experiences. Nonetheless, this was the only significant interaction between either PCPA or PCRQ and any of the romantic relationship dynamics included in the present analyses. Thus, while each romantic relationship and parent–child characteristics may be

important to consider in predicting IPV, their effects appear to operate largely independent of one another.

While outside the primary aims of the present study, it is potentially important to note the two strongest and most consistent predictors of IPV perpetration as measured here were being female and engaging in delinquent behavior. Results indicated that women, compared with men, were 131% more likely to report IPV perpetration in the full regression model. While this finding is in line with much prior research on IPV (e.g., Capaldi et al., 2007, 2012), explicit explanations for gender differences in IPV perpetration were not tested in the present study. Past research has indicated that gender differences are consistently smaller for juvenile than adult samples, as well as for less serious forms of violence (e.g., Archer, 2000; Hamby, 2009). Most individuals do not reach adulthood until Wave III in the present data, and the present study is based on a community sample of adolescents and young adults. Accordingly, these two explanations may account for the higher rate of female violence found here and in other similar samples when compared to IPV studies in mostly adult or clinical-based samples. Relatedly, there is some past literature to indicate that men may be more likely to underreport perpetrating IPV than are women (Schluter, Paterson, & Feehan, 2007), likely due to the less socially desirable nature of male-to-female perpetrated violence.

Likewise, individuals who engaged in delinquent behavior were approximately 66% more likely to be violent toward a romantic partner. The utility of this finding is threefold. Consistent with prior research (Capaldi & Clark, 1998; Swinford et al., 2000), the inclusion of respondent delinquency may provide insight into the processes by which PCPA and PCRQ lead to IPV perpetration, via intervening variables of adolescent and young adult problem behavior. In particular, past research has indicated that antisocial or delinquent individuals may be more likely to select romantic partners who are compatible with and accepting of their behavior (e.g., Carbone-Lopez & Kruttschnitt, 2010; Rhule-Louie & McMahon, 2007). Thus, those individuals reporting IPV perpetration in the present study may be in relationships with partners who are equally aggressive or violent. Likewise, delinquent individuals are increasingly likely to form friendships with other delinquent peers who, in turn, are likely to influence views of romantic relationships and the use of violence within those relationships (Capaldi, Dishion, Stoolmiller, & Yoerger, 2001; Foshee et al., 2013). Importantly, past research has stressed continuity between early family dynamics and the quality of ties formed later in the life course (e.g., Cook, Buehler, & Fletcher, 2012; Cui, Conger, Bryant, & Elder, 2002), indicating that individuals with histories of PCPA and poor PCRQ may be especially likely to form relationships with other antisocial individuals.

Consistent with past research (Burt & Klump, 2012; Silberg et al., 2012), the significant effect of delinquency lends further support to the possibility that some individuals may be more predisposed to violence despite the presence or absence of other risk factors (e.g., parent–child and romantic relationship dynamics). Acknowledging the various ways by which delinquency and other antisocial behaviors may affect IPV experiences further emphasizes the value in taking a multi-faceted approach in the prediction of IPV. Future research efforts would do well to incorporate a multitude of individual, dyadic, and contextual influences for a more thorough depiction of the complex processes by which violence manifests itself in romantic relationships. This result lends further support for our

belief that traditional regression models may be inadequate in the prediction of IPV perpetration. Rather, a more effective approach may be to utilize analytic techniques that try to account for unmeasured heterogeneity among respondents. Such heterogeneity may be selecting individuals into violent experiences, whether as a result of delinquency or some other unmeasured characteristic.

Although the present findings advance our understanding of familial and dyadic influences on romantic relationship violence, there were several limitations in the present study. First, the TARS sample has characteristics similar to the national population; nevertheless, it is a regional sample. Likewise, a minority of individuals in the present study reported perpetrating IPV (between 11% and 22% in each wave), making them relatively unique compared to the sample as a whole. Finally, we measured only physical IPV in the present analysis. As such, generalizability of the findings presented here should be made with caution. Future research efforts should replicate the findings presented here, with nationally representative data and additional violence types of emotional and sexual IPV where possible.

Second, respondents' self-reports were used for the measurement of IPV perpetration and romantic relationship dynamics. Although issues of underreporting or overreporting are possible with any self-reported data, this may be especially the case here given the absence of partner reports in the current data set. Given the widespread absence of research that interviews both members of the romantic dyad (Capaldi et al., 2012), the use of couple-level data is an important avenue for new advances. This may be particularly important when examining violence, given that antisocial individuals are especially prone to assortative mating processes (Capaldi et al., 2001; Krueger, Moffitt, Caspi, Bleske, & Silva, 1998). Third, although both PCPA and PCRQ were important predictors of IPV perpetration, we did not examine the exact processes by which these associations unfold. For instance, although social learning theory presupposes that individuals exposed to PCPA are taught to see violence as an acceptable or at least understandable solution to conflict, or come to believe violence is a common component of healthy, loving relationships, we did not measure respondents' attitudes toward violence.

There are likely many additional facets of the familial environment, outside of PCPA and PCRQ, which may contribute to IPV experiences in adolescence and young adulthood that were not examined in the present study. Given the potential utility of family-based interventions in preventing IPV where maltreatment, conflict, and poor parenting practices are evident (Langhinrichsen-Rohling & Capaldi, 2012), future research should expand the examination of these potential predictors and pathways. Finally, prior research has indicated additional mechanisms, aside from familial and romantic relationship characteristics, which may influence IPV experiences that were not included in the present study. Of particular importance to adolescents and young adults, such mechanisms may include peer relationships and school context (e.g., Foshee et al., 2011; Giordano, Kaufman, Manning, & Long-more, 2015), as well as characteristics of the larger neighborhood and community (e.g., Browning, 2002). Accordingly, continued examination of these and additional mechanisms may provide a more complete portrait of the complex processes by which

violence unfolds in romantic relationships. These analyses are also needed to empirically test the utility of such recent theoretical innovations in the IPV arena as the DDS model.

Continued research is essential to improve our understanding of romantic relationship violence, particularly during adolescence and young adulthood. Yet, the current study makes several efforts to advance upon past research endeavors. Through the use of random-effects analysis, the results presented here combine two largely segregated literatures, illustrating the complex processes by which both parent–child and romantic relationship dynamics influence individuals' propensity for IPV perpetration, net of individuals' own problematic, deviant, and delinquent characteristics.

Acknowledgments

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research was supported by a grant from The Eunice Kennedy Shriver National Institute of Child Health and Human Development (HD036223) and by the Center for Family and Demographic Research, Bowling Green State University, which has core funding from The Eunice Kennedy Shriver National Institute of Child Health and Human Development (R24HD050959-01).

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Appendix

Table A1

Background aggression measures.

Variable	Items	Coding
Delinquency	Seven-item respondent measure at all five waves; how often respondent has (1) stolen (or tried to steal) things worth US$5 or less, (2) carried a hidden weapon other than a plain pocket knife, (3) damaged or destroyed property on purpose, (4) stolen (or tried to steal) something worth more than US$50, (5) attacked someone with the idea of seriously hurting him/her, (6) sold drugs, and (7) broken into a building or vehicle (or tried to break in) to steal something or to look around.	Responses to all items range from “1 = never” to “9 = more than once a day.” The average is taken to form a single indicator of delinquency at each wave, with a possible range of 1–9 (Wave I α = .826, Wave II α = .793, Wave III α = .716, Wave IV α = .621, and Wave V α = .589).
Interparental conflict	Wave 1 parent questionnaire: “How often do you have disagreements with your current spouse or partner?	“0 = rarely” to “3 = very often”
Conflict exposure	Wave 1 parent questionnaire: “When you have disagreements with your current spouse or partner, how much or how little do you tell your child about it?”	“0 = I do not tell my child anything” to “3 = I tell my child everything”
Family conflict tactics	Four-item measure from the Wave V respondent questionnaire asks respondents, “When you were growing up, how often did either one of your parents throw something at the other,” “… push, shove or grab the other,” “… slap the other in the face or head with an open hand,” and “… hit the other?”	Responses to all items range from “1 = never” to “5 = very often” and are combined to form one measure ranging from 4 to 20 (α = .951).
Problem child	Four-item measure from Wave I parent questionnaire asks parents to respond to the following: “My child is unhappy, sad or depressed,” “… fussy or irritable,” “… loses	Responses to all items range from “1 = strongly disagree” to “5 =strongly agree.” They are combined to form one measure with a possible range of 4–20, with higher scores indicating

Variable	Items	Coding
	his/her temper easily," and "… bullies, or is cruel or mean, to others."	individuals who were more problematic as children (α = .754).
Parental juvenile delinquency (four measures)	Four separate items from Wave I parent questionnaire ask parents whether the following things happened during their teen years: "you were suspended or expelled from school," "you were arrested by police," "you drank alcohol," and "you used drugs."	Each item is dichotomous, where 1 indicates the parent experienced the event and 0 otherwise. All 4 items are kept separate in multivariate analyses.
Parental adult deviance/ criminality (three measures)	Three separate items from Wave I parent questionnaire. Two items ask parents to indicate how many times during the year prior to the interview they had "used alcohol to get drunk" and "used drugs to get high." The third item asks parents to indicate "the number of times one of your child's parents was sent to prison."	Alcohol and drug use items range from "0 = never" to "7 =almost daily." Parental imprisonment ranges from "0 = never" to "4 =4 or more times." All three items are kept separate in multivariate analyses.

Table A2

Parent–child relationship quality across time, itemized measures.

Individual construct items	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5
My parents give me the right amount of affection	4.16 (1–5; 0.03)	4.01 (1–5; 0.03)	4.11 (1–5; 0.03)	4.08 (1–5; 0.03)	4.08 (1–5; 0.03)
My parents trust me	3.99 (1–5; 0.03)	4.00 (1–5; 0.03)	4.10 (1–5; 0.03)	4.18 (1–5; 0.03)	4.26 (1–5; 0.03)
My parents sometimes put me down in front of other people	3.95 (1–5; 0.03)	3.94 (1–5; 0.03)	4.09 (1–5; 0.03)	4.06 (1–5; 0.03)	4.21 (1–5; 0.03)
My parents seem to wish I were a different type of person	4.15 (1–5; 0.03)	4.04 (1–5; 0.04)	4.13 (1–5; 0.03)	4.09 (1–5; 0.03)	4.15 (1–5; 0.03)
I feel close to my parents	4.14 (1–5; 0.03)	3.97 (1–5; 0.03)	4.16 (1–5; 0.03)	4.17 (1–5; 0.03)	4.14 (1–5; 0.03)
When you and your parents disagree about things, how often do you call each other names and insult one another?	5.28 (1–6; 0.03)	5.28 (1–6; 0.04)	5.39 (1–6; 0.03)	5.45 (1–6; 0.03)	4.62 (1–5; 0.02)
When you and your parents disagree about things, how often you do yell at each other?	4.15 (1–6; 0.05)	4.15 (1–6; 0.05)	4.27 (1–6; 0.05)	4.48 (1–6; 0.05)	4.20 (1–5; 0.03)

Note. Items are reported in means; ranges and standard deviations are shown in parentheses. N = 950 respondents.

Source. Toledo Adolescent Relationships Study.

Table A3

IPV perpetration, familial background, and romantic relationship dynamics, correlations.

	IPV perpetration	PCPA	PCRQ	Jealousy and control	Infidelity	Verbal aggression	Arguments	Mist
IPV perpetration	—							
PCPA	.100***	—						
PCRQ	−.162***	−.353***	—					
Jealousy and control	.312***	.125***	−.221***	—				
Infidelity	.191***	.119***	−.108***	.190***	—			
Verbal aggression	.469***	.119***	−.207***	.402***	.221***	—		
Arguments	.306***	.067***	−.115***	.418***	.141***	.384***	—	

	IPV perpetration	PCPA	PCRQ	Jealousy and control	Infidelity	Verbal aggression	Arguments	Mist
Mistrust	.260***	.116***	–.174***	.388***	.340***	.340***	.299***	–

Note. IPV: intimate partner violence; PCPA: parent–child physical aggression; PCRQ: parent–child relationship quality. N = 950 respondents.

^ $p < 0.10$;

* $p < 0.05$;

** $p < 0.01$;

*** $p < 0.001$.

Source: Toledo Adolescent Relationships Study.

J Soc Pers Relat. Author manuscript; available in PMC 2018 December 01.

Table 1

Intimate partner violence perpetration and time-varying correlates.

	Wave I	Wave II	Wave III	Wave IV	Wave V
	Mean or %	**Mean or %**	**Mean or %**	**Mean or %**	**Mean or %**
Dependent variables					
IPV perpetration (%)	13.26	11.16	17.37	22.32	13.58
Independent variables					
Familial background factors					
PCPA (%)	22.48	18.73	14.35	10.71	10.95
PCRQ	0.14 (0.15)	0.14 (0.16)	0.17 (0.16)	0.21 (0.16)	0.02 (0.18)
Relationship dynamics					
Jealousy and control	12.40 (0.15)	12.53 (0.16)	12.77 (0.14)	10.19 (0.12)	12.01 (0.14)
Infidelity	3.03 (0.06)	3.12 (0.07)	3.09 (0.06)	2.85 (0.05)	2.70 (0.04)
Verbal aggression	7.91 (0.11)	7.82 (0.12)	8.15 (0.11)	8.28 (0.11)	7.68 (0.09)
Arguments	2.33 (0.04)	2.39 (0.04)	2.52 (0.03)	2.73 (0.03)	2.70 (0.03)
Mistrust	2.32 (0.04)	2.25 (0.05)	2.21 (0.04)	2.18 (0.04)	1.98 (0.04)
Relationship-specific controls					
Relationship type					
Current (%)	44.11	40.21	46.63	67.08	75.47
Past (omitted) (%)	55.89	59.79	53.37	32.92	24.53
Relationship status					
Dating (omitted) (%)	75.16	66.21	82.84	70.11	41.26
Cohabiting (%)	0.32	1.89	7.68	20.05	30.63
Married (%)	0.21	0	1.05	6.26	22.42
Relationship duration	4.79 (0.08)	5.48 (0.08)	5.89 (0.07)	6.72 (0.06)	7.16 (0.04)
Background aggression factors					
Delinquent and deviant behaviors	1.14 (0.02)	1.15 (0.02)	1.16 (0.02)	1.14 (0.01)	1.09 (0.01)
Sociodemographic Correlates					
Residency status					
In parental home (%)	94.63	86.21	80.95	45.79	20.42
Out of parental home (omitted) (%)	5.37	13.79	19.05	54.21	79.58

	Wave I	Wave II	Wave III	Wave IV	Wave V
	Mean or %	**Mean or %**	**Mean or %**	**Mean or %**	**Mean or %**
Gainful activity					
Yes (%)	100.0	72.21	79.26	71.16	63.89
No (omitted) (%)	0	27.79	20.74	28.84	36.11
Age	15.22 (0.06)	16.38 (0.06)	18.16 (0.06)	20.33 (0.06)	25.40 (0.06)

Note. IPV: intimate partner violence; PCPA: parent–child physical aggression; PCRQ: parent–child relationship quality. PCRQ is standardized. Ranges: −18–7; −18–7; −21–7; −21–7; −25–6; Standard deviations for all means shown in parentheses. $N = 950$.

Source. Toledo Adolescent Relationships Study.

Table 2

Time-stable correlates and sociodemographic characteristics.

	Mean	SD	Range	Frequency	%
Independent variables					
Gender					
Male				443	46.6
Female				507	53.4
Race					
White (omitted)				626	65.9
Black				198	20.8
Hispanic				103	10.8
Other				23	2.4
Family structure					
Two biological parents (omitted)				518	54.5
Single parent family				203	21.4
Stepparent family				127	13.4
Other family type				102	10.7
Parental education					
Less than high school				105	11.1
High school graduate (omitted)				616	64.8
College graduate				229	24.1
Parental employment status					
Unemployed (omitted)				199	21.0
Employed				751	79.0
Parental government assistance					
Receiving government assistance				105	11.1
No government assistance (omitted)				845	88.9
Parental juvenile delinquency					
Suspended/expelled from school					
Yes				125	13.2
No (omitted)				825	86.8

	Mean	SD	Range	Frequency	%
Arrested					
Yes				38	4.0
No (omitted)				912	96.0
Drank alcohol					
Yes				382	40.2
No (omitted)				568	59.8
Used drugs					
Yes				218	23.0
No (omitted)				732	77.0
Parental adult deviance/criminality					
Alcohol use	0.8	0.05	0–7		
Drug use	0.1	0.03	0–7		
Imprisonment	0.2	0.02	0–4		
Background aggression factors					
Interparental conflict	0.7	0.02	0–3		
Conflict exposure	0.6	0.02	0–3		
Family conflict tactics	5.5	0.1	4–20		
Problem child	9.2	0.1	4–19		

Note. $N = 950$.

Source. Toledo Adolescent Relationships Study.

Table 3

Random-effects logistic regression for IPV perpetration, odds ratios.

	Zero-order	Model 1	Model 2	Model 3
Parent–child factors				
PCPA	1.672***	1.377*	1.147	0.655
PCRQ	0.920***	0.943***	0.979^	0.928
Relationship dynamics				
Jealousy and control	1.255***		1.081***	1.080***
Infidelity	1.337***		1.134***	1.132**
Verbal aggression	1.560***		1.402***	1.370***
Arguments	2.552***		1.384***	1.485***
Mistrust	1.768***		1.166**	1.178**
PCPA × Jealousy and Control	0.975			1.012
PCPA × Infidelity	0.945			1.056
PCPA × Verbal Aggression	1.055			1.138*
PCPA × Arguments	0.822			0.731^
PCPA × Mistrust	0.947			0.964
PCRQ × Jealousy and Control	1.000			0.999
PCRQ × Infidelity	1.006			1.007
PCRQ × Verbal Aggression	1.003			1.002
PCRQ × Arguments	1.009			1.004
PCRQ × Mistrust	1.007			1.007
Time-varying correlates				
Relationship-specific factors				
Current relationship *(past omitted)*	2.333***	1.004	1.332*	1.344*
Cohabiting (dating omitted)	2.442***	1.518*	1.583*	1.576*
Married	1.550*	1.328	1.424	1.432
Relationship duration	1.241***	1.304***	1.168***	1.172***
Sociodemographic factors				
Age	1.026*	0.911***	0.912***	0.911***
Parental home	0.733**	0.950***	0.797	0.795
Gainful activity	0.830^	0.891	0.923	0.923
Background aggression measure				
Delinquency	1.599***	1.687***	1.642***	1.664***
Time-stable correlates				
Gender (male omitted)				
Female	1.753***	1.581***	2.270***	2.310***
Race (white omitted)				
Black	2.328***	1.819***	1.463*	1.461*

	Zero-order	Model 1	Model 2	Model 3
Hispanic	2.136***	1.416	1.296	1.308
Other	1.003	0.946	1.051	1.029
Family structure (bio-parents omitted)				
Single parent family	2.144***	1.268	0.903	0.912
Stepparent family	1.767**	1.039	0.860	0.865
Other family	2.168***	1.086	1.050	1.029
Parental socioeconomic status				
Education (high school grad omitted)				
Less than high school	1.939***	1.308	1.455^	1.465^
College graduate	0.466***	0.678*	0.740^	0.756
Employment status (unemployed omitted)				
Employed	0.594***	0.803	0.953	0.948
Government assistance (no asst. omitted)				
Receiving government assistance	2.251***	1.085	1.145	1.140
Background aggression factors				
Interparental conflict	1.033	1.119	1.058	1.065
Conflict exposure	0.990	1.025	0.976	0.982
Family conflict tactics	1.139***	1.052*	1.027	1.027
Problem child	1.090***	1.024	0.996	0.997
Parent characteristics				
Juvenile delinquency				
Suspended/expelled from school	1.512*	1.003	1.101	1.099
Arrested	2.035*	1.368	1.429	1.433
Drank alcohol	0.920	0.821	0.843	0.849
Used drugs	1.269	1.315	1.220	1.205
Adult deviance/criminality				
Alcohol use	1.097*	0.990	0.999	0.999
Drug use	1.098	0.974	0.980	0.980
Imprisonment	1.364**	0.981	1.068	1.079

Note. PCPA: parent–child physical aggression; PCRQ: parent–child relationship quality. $N = 950$ respondents.

^ $p < 0.10$;

* $p < 0.05$;

** $p < 0.01$;

*** $p < 0.001$.

Source. Toledo Adolescent Relationships Study.