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FAMILIAL EFFECTS ON INTIMATE PARTNER VIOLENCE ACROSS ADOLESCENCE AND YOUNG ADULTHOOD

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ABSTRACT

Research suggests family-of-origin violence is a consistent predictor of young adults' intimate partner violence (IPV). However, prior studies also demonstrate that exposure to violence does not lead in a deterministic fashion to violent behaviors in young adulthood. Given the family context entails more than whether or not abuse occurs, additional aspects of family life warrant examination. One such aspect is the quality of the parent-child relationship. Using data from the Toledo Adolescent Relationships Study (N=950), the present study examined the influence of harsh parenting and parent-child relationship quality (PCRQ) in predicting adolescents' and young adults' IPV perpetration. Results from fixed effects analyses indicate both harsh parenting and PCRQ are key independent predictors of individuals' IPV perpetration, but do not interact to produce cumulatively different risk. Harsh parenting is also found to be a significant risk factor for men's IPV perpetration, yet is not significant in the prediction of women's perpetration.

Keywords: adolescent dating, child abuse, gender, intergenerational relationships, intimate partner violence, parent-child relationships

One of the most consistent predictors of IPV experiences in adolescence and young adulthood is exposure to violence in the family of origin. Such exposure may occur either as a direct victim when experiencing child maltreatment, or as an indirect victim through the witnessing of interparental violence and aggression (e.g., Renner & Whitney, 2012; Simon & Furman, 2010; Smith, Ireland, Park, Elwyn, & Thornberry, 2011; Swinford, DeMaris, Cernkovich, & Giordano, 2000). The strength of such an association can be understood through the lens of social learning theory (Bandura, 1977, 1986; Kalmuss, 1984). The foundation of the theory is that because the family is one of the first and main socializing institutions for individuals, the relationships between the 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 are thought to internalize these experiences as both acceptable and normative. In turn, violence is seen as an appropriate way of interacting with others generally, and dealing with conflict, more specifically, in future relationships.

Individuals exposed to violence in their families of origin often have difficulty establishing healthy relationships with romantic others, as childhood exposure to violence leads to fear, mistrust, and hostility when interacting in relationships. Having lacked healthy role models in their youth, these individuals often have limited resources for dealing with relationship conflict in constructive ways. Similarly, those victimized by child maltreatment and interparental aggression often develop an expectation for violence in their own relationships, or feel violence is necessary to maintain control and power in their lives (Grych & Kinsfogel, 2010; Lee, Walters, Hall, & Basile, 2013; Parks, Kim, Day, Garza, & Larkby, 2011; Wolfe, Scott, Wekerle, & Pittman, 2001). However, prior empirical research driven by social learning theory has demonstrated that exposure to violence does not lead in a deterministic fashion to violent behaviors in young adulthood (e.g., Fang & Corso, 2008; Schafer, Caetano, & Cunradi, 2004; Smith et al., 2011; Widom, 1989). Relatedly, some previous work has found that attitudes supporting dating violence are correlated with childhood maltreatment, witnessing interparental aggression, and adolescents' own IPV experiences when measured at the same points in time. Yet, such attitudes are not predictive of future romantic relationship violence (Wolfe, Wekerle,

Scott, Straatman, & Grasley, 2004). Other studies have demonstrated that exposure to violence in the family-of-origin may be more predictive of women's than men's IPV experiences. Moreover, once symptoms such as anxiety, depression, posttraumatic stress, and affect regulation are taken into account, child maltreatment may become only a distal risk factor for adolescent dating violence (Dankoski et al., 2006; Fang & Corso, 2008; Karakurt, Keiley, & Posada, 2013; Wolfe et al., 2004). These complex and occasionally inconsistent findings lead to the conclusion that other potential antecedents need to be taken into account.

Drawing on an integration of social learning and attachment theories and five waves of longitudinal data from adolescence to young adulthood, this paper assessed the main and interactive effects of harsh parenting and parent-child relationship quality on IPV perpetration. We examined how family factors as well as key time-varying sociodemographic, background aggression, and relationship-specific characteristics influenced perpetration at different stages of the life course and across time. The use of fixed effects regression helped determine whether certain individuals may be predisposed to violence regardless of familial background experiences.

Parent-Child Relationship Quality and IPV

Less extensively studied than childhood exposure to violence, especially in reference to IPV, is the overall relationship quality between the parent and the child. Given that the familial background entails more than simply the presence or absence of abuse, studies examining parental effects are missing imperative information when not taking parent-child relationship quality (PCRQ) into account. 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 the parent and child spend together (Miller, Gorman-Smith, Sullivan, Orpinas, & Simon, 2009), and how much the child feels respected, trusted and accepted by his or her 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. Such a notion is supported by attachment theory (Bowlby, 1982). Attachment theory rests on the premise that individuals begin to form early cognitive models of relationships with others based on the interactions they have with their parents and other adult caregivers. These relationship ideas and beliefs can begin forming as early as infancy and often entail such notions of others as being predictable and trustworthy, of the self as being lovable and competent, and of relationships in general as being rewarding and worthwhile. As such, an insecure attachment style developed in response to dysfunctional parenting practices may inhibit the social skills necessary to initiate or maintain consensual intimate relationships. Insecure attachments have also been found to lead to anger and hostility toward potential or actual partners (Dutton, 1994; Dutton, Starzomski, & Ryan, 1996). More specifically, prior research has demonstrated that individuals who describe their families as unloving, unrewarding, or unsafe often come to view all relationships in this light. When such negative views are fashioned or continued into adolescence, these individuals enter romantic relationships with little expectation of positive reinforcement, support or love. These lower expectations, in turn, often lead to relationships defined by more conflict and other problematic characteristics (Busby, Holman, & Walker, 2008; Wekerle et al., 2009).

Past research has also found PCRQ matters not only independent of, but often more than, childhood maltreatment when predicting IPV in later adolescence and young adulthood (Dutton, 1994; Dutton et al., 1996; Wekerle et al., 2009). 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.

Much like harsh parenting, prior studies examining aspects of parent-child relationship quality in regard to IPV have garnered mixed support. In examining one potential facet of the parent-child relationship, research has found that the communication styles used by parents with their children are predictive of women's IPV perpetration and victimization experiences in young adulthood, but are not predictive for young adult men's IPV experiences (Babin & Palazzolo, 2012). Conversely, parental verbal

aggression has been found to be a significant risk factor for violence in both men's and women's intimate relationships in young adulthood (Palazzolo et al., 2010). Finally, previous work that examined harsh parenting and parent-child relationship quality simultaneously found that PCRQ is predictive of neither men's or women's IPV experiences during earlier adolescence (Richards & Branch, 2012). It is important to note, however, that this latter study analyzed harsh parenting and PCRQ in only their main effects. It did not consider the possibility that parental factors may interact to produce cumulatively different results.

A particularly intriguing hypothesis is that it is not just negative PCRQ that may lead to IPV in later life, but positive PCRQ may as well under certain circumstances (Simons, Simons, Lei, Hancock, & Fincham, 2012). Specifically, when combined with childhood exposure to violence, parental warmth may amplify the negative effects of harsh parenting. According to Straus and Gelles' (1990) argument, parents foster IPV to the extent that they teach their children that verbal and physical aggression are a normal and legitimate component of loving relationships. That the quality of the parent-child relationship may moderate the effect of harsh parenting on IPV experiences is thus an extension of social learning theory. Specifically, a strict interpretation of the theory would suggest that children are more likely to learn such lessons regarding loving relationships when parental hostility is interspersed with affection. This is, according to social learning theory, individuals are more likely to observe, to be intermittently reinforced by affection, and to learn and mimic the behaviors of those individuals who matter to them. Thus, harsh parenting occurring within the context of low PCRQ would provide little information about how children should treat those they love, as they themselves would not feel loved in such a context. However, if children feel their parents love them, thus indicating the perception of more positive relationship qualities, while at the same time being exposed to violence via their parents, they may come to see violence as a normal part of intimate relationships. Accordingly, we expect that, when measured in its main effect, higher relationship quality will lead to a decreased likelihood of violence perpetration in individuals' intimate relationships. However, when combined with experiences of harsh parenting, we expect that greater parent-child relationship quality will amplify the positive effects of harsh parenting on IPV perpetration experiences.

Risk Factors of IPV

Much of the literature linking family-of-origin experiences to young adults' intimate partner violence (IPV) has focused solely on childhood maltreatment and interparental aggression (e.g., Parks et al. 2011; Roberts, McLaughlin, Conron, & Koenen 2011; Wareham, Boots, & Chavez, 2009), failing to include other meaningful aspects of family life. This current study provided important insights by including key family indicators. A second limitation of prior research on IPV is the reliance on retrospective and cross-sectional data, ignoring the possibility that intimate violent experiences may vary in different periods of the life course and across time (Bonomi et al., 2012; Franklin & Kercher, 2012; Halpern, Spriggs, Martin, & Kupper 2009; Shortt et al., 2012). This limitation is especially problematic when examining adolescent and young adult experiences with IPV. Among these individuals, intimate partner violence may not only vary as a function of age and time, but also as a result of changes in familial background characteristics over time (Aquilino 1997, 2006; Belsky, Jaffee, Hsieh, & Silva, 2001; Thornton, Orbuch, & Axinn, 1995). Thus, as the parent-child relationship changes function and form throughout the life course, IPV experiences may also differ. Our reliance on prospective data collected from adolescence into adulthood provided a key advantage over prior work.

Finally, realizing some individuals may have a predisposition toward violence regardless of familial background, some studies have included childhood and adolescent behavioral problems in their prediction of IPV (e.g., Hair et al., 2008; Swinford et al., 2000). However, many other factors could predispose individuals to IPV, or may serve as mediators between family background and IPV in later life, and such factors are often not accounted for in prior studies. For example, compared to individuals with no IPV experience, those who reported IPV were also more likely to exhibit low impulse control (Derefinko, DeWall, Metze, Walsh, & Lyman, 2011; Finkel, DeWall, Slotter, Oaten, & Foshee, 2009), and to display certain social psychological characteristics such as borderline, antisocial, narcissistic, avoidant, and dependent personality traits (Maneta, Cohen, Schulz, & Waldinger 2013; Varley, Thornton, Graham-Kevan, & Archer, 2010). Thus, without taking into account all of these, plus any additional

unmeasured or unknown characteristics, studies aiming to predict IPV experiences may have resulted in upwardly biased estimates of the effects of familial background factors.

To capture how changing life course experiences influenced IPV perpetration, we accounted for a number of correlates identified in past research as influencing violence perpetration and victimization in intimate relationships. These included age (Bonomi et al., 2012; Halpern et al., 2009), an age appropriate measure of socioeconomic status, gainful activity (Alvira-Hammond, Longmore, Manning, & Giordano, 2014), delinquent and deviant behaviors (Hair et al., 2008; Swinford et al., 2000), relationship status (i.e., dating, cohabiting, married) (Cui, Ueno, Gordon, & Fincham, 2012; Renner & Whitney, 2010), and relationship length (Giordano, Soto, Manning, & Longmore, 2010). We also included a measure of residency status, specifically whether the individual resided in the parental home. Although residing in the parental home is not necessarily correlated with the presence or absence of IPV, given this study's emphasis on familial background, its inclusion is imperative. Specifically, individuals who reside in the parental home have a greater likelihood of being exposed to harsh parenting practices and may be likely to exhibit different qualities in their parent-child relationships more generally. Finally, we utilized fixed-effects regression analyses to account for unmeasured heterogeneity that may be selecting individuals into IPV perpetration, but which was not accounted for by the explicitly aforementioned correlates.

Gender and IPV

Prior research on IPV, especially among adolescents and young adults, also places emphasis on gender differences in violence experiences (Anderson, 2013; Cho, 2012; Fang & Corso, 2008; Miller et al., 2009). Previous studies have noted when analyzing IPV experiences in younger populations that women's reports of perpetrating violence are often equivalent to or greater than men's perpetration reports (Anderson, 2013; Cho, 2012; Gelles, Flannery, Vazsonyi, & Waldman, 2007; Straus, 2009).

Harsh parenting is associated with IPV perpetration for men and women (Smith et al., 2011; Swinford et al., 2000; Giordano, Johnson, Manning, & Longmore, 2014; Giordano, Kaufman, Manning,

& Longmore, 2015). Yet, familial background factors may have differing effects on the risk of experiencing IPV for men and women. Specifically, past research has found the relationship between violence experienced as a child and aggression in adolescence and young adulthood is stronger for women than for men (Fang & Corso, 2008). One explanation in the literature for this differing effect is that women who engaged in violence are often responding to their own victimization. Conversely, male violence is often enacted for a wider array of reasons, including during the commission of a crime, peer pressure, as a reaction to other aggressive men, or to defend one's reputation (Herrera & McCloskey, 2001). Relatedly, in examining the parent-child relationship, prior studies illustrated that the quality of this relationship may be more protective for women in deterring a variety of deleterious outcomes (Alarid, Burton, & Cullen, 2000; Kerpelman & Smith-Adcock, 2005). This appears to be especially true concerning aspects of parental warmth and attachment, the primary components of the measure of PCRQ utilized in the present study. We evaluated whether harsh parenting and PCRQ had similar effects on perpetration among men and women. Consistent with Fang & Corso (2008), we expected harsh parenting to have a stronger effect on IPV perpetration for women. Likewise, and consistent with prior research, we also expected parent-child relationship quality to have a stronger effect on IPV perpetration for women.

Current Investigation

To address the limitations of previous research, the current study utilized an integrated theoretical approach and thus contributed to the literature in several ways. With a central focus on social learning theory, the present research allowed for the importance of traditionally measured harsh parenting exposure in influencing IPV perpetration. However, elements of attachment theory were also incorporated (Bowlby, 1982), providing the basis for parent-child relationship quality as a further determinant of individuals' IPV reports. The use of longitudinal data allowed us to assess perpetration experiences from adolescence into young adulthood. We expected harsh parenting to be positively associated with and PCRQ to be negatively associated with perpetration of violence. Moreover, both the main and interactive effects of harsh parenting and parent-child relationship quality were tested to examine whether the

influence of familial background factors on IPV perpetration was cumulatively different based on these two domains. We expected that, when examined simultaneously, higher parent-child relationship quality would serve to amplify the positive effect of harsh parenting on IPV perpetration.

The longitudinal data allowed for the likelihood that familial effects may vary at different stages of the life course and across time. In particular, we put forth two competing hypotheses in regard to age. One, familial effects will matter less for older individuals, given the possibility of leaving the parental home and lessening or severing negative familial ties if one chooses upon becoming a legal adult. Two, familial effects would matter more for older individuals as experiences of harsh parenting and poor PCRQ in young adulthood may signify consistently more troubled parental relationships throughout the life course. Finally, through the use of fixed effects regression, which controlled for all stable characteristics of respondents, this research addressed the possibility that certain individuals may be predisposed to violence regardless of familial background experiences.

It is also important to note that information was available about perpetration of intimate partner violence as well as victimization in the present data. However, due to the focus on social learning processes, the conceptual motivation here was directed toward how familial background factors influenced variability in respondents' own behavior (perpetration) within the romantic relationship. Thus, the focus here was limited to IPV perpetration. However, acknowledging that victimization experiences undoubtedly shaped a more complete understanding of violence occurring in intimate partnerships, models were also run with IPV victimization as the outcome of interest. Although not presented here, supplemental models relying on this alternative dependent variable produced a very similar pattern of results.

METHODS

The Sample

Five waves of data from the Toledo Adolescent Relationships Study (TARS) were used in the current investigation. The TARS study is based on a stratified random sample of 1,321 adolescents in the 7^{th}, 9^{th}, and 11^{th} grades and their parents/guardians in Lucas County, Ohio. 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 also similar to estimates of race and ethnicity, family incomes, and education to the national population based on 2010 U.S. Census data.

Data were originally collected to investigate adolescents' romantic and sexual behaviors, and to examine how these behaviors were influenced by their families, peers, and romantic partners. The first wave of data was collected in 2001, when respondents were, on average, 15 years of age. Wave II was collected in 2002, wave III in 2004, wave IV in 2006-2007, and wave V in 2011-2012, when respondents were, on average, 16, 18, 20, and 25 years old, respectively. By wave V, there were 1,021 respondents, with a retention rate of 77 percent from wave I.

The analytic sample was restricted based on the requirements of the research questions. Focusing on the IPV experiences of adolescents and young adults, the sample consisted of only those individuals reporting on a romantic partner in at least one wave of data (N = 979). Moreover, individuals missing on any time-stable characteristics were excluded, bringing the final analytic sample to N = 950 (443 male and 507 female) respondents and, correspondingly, 4,750 person-period observations.

Measures

Dependent Variable

IPV perpetration. Four items were used to address the presence or absence of respondents' IPV perpetration at each wave, based on the revised Conflict Tactics Scale (CTS2) (Straus, Hamby, Boney-McCoy, & Sugarman, 1996). These items 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 quite skewed, in that the majority of respondents reported never perpetrating any of these acts. Hence, respondents were simply

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.

Independent Variables

Familial background factors. Harsh parenting was a dichotomous variable at each wave measuring whether the respondents' parents pushed, slapped or hit them during arguments and disagreements. Respondents exposed to harsh parenting were coded as 1, and 0 otherwise. PCRQ was assessed through seven items. Respondents were asked to report their level of agreement or disagreement with the following 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." Two additional items assessed the frequency of verbal aggression between the respondent and their 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). Given the different response scales across these seven times, all items were standardized so as to provide equal weight in the measurement of PCRQ. These items were then combined, resulting in one continuous measure of parent-child relationship quality at each wave (wave I $\alpha = 0.82$, wave II $\alpha = 0.82$, wave III $\alpha = 0.82$, wave IV $\alpha = 0.82$, wave V $\alpha = 0.83$).

Background aggression. Seven items were used to assess respondent *Delinquent and Deviant Behaviors* at each wave and asked respondents to report how often they have: "stolen (or tried to steal) things worth $5 or less," "carried a hidden weapon other than a plain pocket knife," "damaged or destroyed property on purpose," "stolen (or tried to steal) something worth more than $50," "attacked someone with the idea of seriously hurting him/her," "sold drugs," and "broken into a building or vehicle (or tried to break in) to steal something or just to look around." Responses ranged from 1 (*never*) to 9 (*more than once a day*). The average of these items was taken to form a single-item indicator of respondents' delinquent and deviant behaviors at each wave, with a possible range of 1-9 (wave I $\alpha = 0.83$, wave II $\alpha = 0.79$, wave III $\alpha = 0.72$, wave IV $\alpha = 0.62$, wave V $\alpha = 0.59$.

Relationship-specific controls. Three variables were used to assess basic characteristics of respondents' intimate relationships. The length of the relationship was measured continuously by one item, 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. It was measured by two dichotomous variables, "cohabiting" and "married," with dating respondents serving as the comparison category. Whether the respondent is reporting on experiences in a current or past intimate relationship was represented by one dichotomous variable, with a past or most recent relationship serving as the comparison category.

Sociodemographic controls. Four measures were used in multivariate analyses to indicate respondent gender, age, residency and socioeconomic status. Gender was a dichotomous variable, with male serving as the contrast category. Age was a continuous measure at all five waves. After analytic sample restrictions, respondents were, on average, 15, 16, 18, 20, and 25 years of age, respectively. Respondents' residency status was measured at all five waves to assess whether respondents lived in the same home as their parent(s), and was measured by a dichotomous variable. Specifically, respondents living with one or both parents, as well as any other family members, were considered to be residing in the parental home and coded as 1, and 0 otherwise. Finally, given the varying ages of the sample at each wave, where respondents progress from adolescent minors to legal adults throughout the course of the study, an age-appropriate measure of respondents' socioeconomic status was utilized, referred to as "gainful activity" (Alvira-Hammond et al., 2014). Specifically, three items were used to construct a dichotomous measure of individuals' educational and employment status. Those respondents either currently attending school or employed full-time were considered gainfully active and coded as 1, while others were considered not gainfully active and coded as 0.

Data Analysis

The current study utilized fixed-effects logistic regression models to examine the independent and interactive effects of harsh parenting exposure and parent-child relationship quality in the prediction of IPV perpetration. We also tested interactions between each of these two constructs with age and gender.

These interactions allowed for the analysis of whether the IPV perpetration experiences of older or younger individuals and men or women were more greatly influenced by harsh parenting and parent-child relationship quality.

Fixed-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. More importantly, fixed-effects aids in the reduction of selection effects by accounting for unmeasured heterogeneity among respondents that arises when some unmeasured characteristic of respondents may be accounting for their selection into a particular category of the independent variables and a particular category of the outcome variable under examination. In other words, fixed-effects models allow for the possibility of selection effects, i.e., certain individuals may have a predisposition toward violent experiences. Such was accomplished through the use of conditional maximum likelihood estimation, where all time-invariant predictors and fixed parameters were eliminated from the likelihood function by conditioning on the reduced sufficient statistics of the fixed parameters (Allison, 2009).

Thus, in the case of the current study, although familial and individual background factors (i.e., harsh parenting, PCRQ, delinquency, age, relationship status), were explicitly controlled for in multivariate analyses, fixed-effect models implicitly control for any fixed characteristics of the individual that do not change over time that also have stable (time-invariant) effects on the response. As detailed previously, unmeasured characteristics may include low impulse control and negative personality traits (Derefinko et al., 2011; Maneta et al., 2013; O'Leary & Woodin, 2006), among others.

One disadvantage to the fixed-effects approach is the inability to estimate the effects of respondents' time-stable characteristics on IPV, even those that are known, as all time-stable characteristics are eliminated in multivariate analyses. Measures, which are known in the present data but automatically controlled for, included sociodemographic variables of parental education and employment status, respondent race, and respondent family structure at wave I. Also controlled for are time-invariant factors found to be related to IPV through social learning and intergenerational literatures, including

parents' own delinquency and criminality, verbal conflict between parents, respondent exposure to verbal and physical conflict in the family-of-origin, and respondent behavioral problems as children (Ferguson, 2011; Silberg, Maes & Eaves, 2012; Thornberry, Freeman-Gallant, & Lovegrove, 2009; Wareham et al., 2009).

Model Selection Strategy

In using fixed-effects, it is also important to first test whether a fixed-effects or a random-effects model provides a better fit to the data. A random-effects model is similar to fixed-effects in that it adjusts for the within-person correlation of repeated measurements over time. However, random-effects models assume unmeasured characteristics are uncorrelated with explicitly measured characteristics, thus only accounting for unmeasured heterogeneity, which is directly associated with the dependent variable. A random-effects formulation also provides estimates of the effects on IPV of time-invariant factors. Fixed-effects models, on the other hand, make no assumption about the relationships between unmeasured and measured characteristics of respondents, but do not allow for the estimation of the effects of time-stable correlates on IPV experiences.

To determine which method was the most appropriate for the current data, both fixed-effects and random-effects models were run, as well as an equivalency test between the two. Results from Allison's hybrid model (Allison 2005, 2009) illustrated significant differences between the coefficients derived from the fixed- and random-effects approaches, leading to the conclusion that fixed-effects was the superior method. Allison's hybrid model was used as an alternative test to the more-traditionally utilized Hausman test. The hybrid model was chosen after the Hausman test produced a non-positive definite covariance matrix.

RESULTS

Descriptive Statistics

Although time-invariant correlates were not included in multivariate analyses, it is important to note a few characteristics of the current sample. A slight majority (53.4%) of respondents were female and were raised in a two biological parent household (54.5%), compared to single parent, stepparent and

other family-type households. The most common racial identification of the sample was White (65.9%), although there were significant portions of Black (20.8%) and Hispanic (10.8%) respondents. At the time of the wave I interview, the majority of respondents' parents were high school graduates (64.8%), employed (79.0%) and not receiving government assistance (88.9%).

Turning to measures included in the multivariate analyses, Table 1 included the frequencies of experiencing IPV perpetration across all five waves and all time-varying correlates. IPV perpetration ranged from approximately 11-22%, with the largest number of reports occurring in wave IV, when respondents were on average 20 years old. In examining familial background factors, between 11-22% of individuals reported experiencing harsh parenting across time. As expected, respondents also reported less harsh parenting as they age, most likely a result of leaving the parental home. Since parent-child relationship quality 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 parent-child relationship quality across time, Table A1, found in the appendix, showed the mean scores of all seven items used to construct PCRQ before they were standardized. These scores demonstrated that, on average, parent-child relationship quality either remained stable or was slightly more positive over time.

[Insert Table 1 about here]

In terms of relationship-specific factors, the length of respondent relationships were, on average, between 2-5 months at waves I and II, 6-8 months at wave III, and nine months to a year at waves IV and V. The results also showed that 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.

In regard to individual-level factors, which vary across time, the mean delinquency score was low and exhibited little variation across the five waves. As expected, most respondents lived with their parents

at wave I (95 percent), although the majority had moved out of the parental home by wave V (80 percent). The majority of individuals were also 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.

Multivariate Results

Table 2 presented nested models for the fixed-effects regression for IPV perpetration. Model 1 regressed IPV perpetration on harsh parenting only. Counter to previous research and as hypothesized in the present study, harsh parenting was statistically nonsignificant in predicting individuals' violent behavior in intimate relationships. Model 2 then added parent-child relationship quality to the regression, and results indicated that PCRQ was a highly significant predictor of respondents' IPV perpetration. Specifically, each unit increase in PCRQ reduced the odds of individuals perpetrating violence against an intimate partner by approximately 4%. Such a finding supported the notion that PCRQ may matter not only in addition to, but also independent of, family-of-origin violence in predicting IPV experiences.

[Insert Table 2 about here]

Model 3 included time-varying sociodemographic, background aggression, and relationship-specific correlates expected to influence individuals' risk of perpetrating violence against an intimate partner. Parent-child relationship quality remained a significant predictor in the odds of IPV perpetration with the inclusion of this block of time-varying correlates. Age was inversely related to IPV perpetration. For each year increase in age, the odds of perpetrating IPV decreased by approximately 10%. As would be expected, respondents' delinquency was a positive and significant predictor of IPV perpetration, whereby each unit increase in delinquency increased the odds of perpetrating IPV by approximately 38%. Neither respondents' gainful activity nor residing in the parental home served as statistically significant predictors of IPV perpetration experiences. Turning to relationship-specific factors, relationship length was positively and significantly associated with respondents' IPV perpetration reports, whereby each unit increase in length increased the odds of IPV perpetration by approximately 33%. Conversely, results

indicated no statistically significant differences in IPV reports between dating and married respondents; although differences between dating and cohabiting respondents reached marginal significance at conventional levels ($p < 0.10$). Likewise, individuals reporting on a current versus a past relationship did not differ to a statistically significant degree in their odds of perpetrating violence against an intimate partner.

Models 4-6 then presented the interaction between harsh parenting and PCRQ, as well as interactions between each of these constructs with both age and gender. Results indicated no statistically significant interaction between harsh parenting and PCRQ in predicting the likelihood of respondents' IPV experiences. In other words, PCRQ, as measured here, did not appear to amplify the effects of harsh parenting on IPV perpetration. Conversely, findings from Model 5 indicated significant interactions between age and familial background. In particular, the effect of PCRQ on IPV perpetration appeared to be more negative for older than younger individuals, whereby the effect is 0.091 - 0.006 x Age. Thus, at 15 years of age, the effect of PCRQ was near zero, at $\beta = 0.001$. At 25 years of age, the effect of PCRQ was $\beta = -0.059$. Harsh parenting, on the other hand, did not vary with age.

Findings from Model 6 also provided support for the expectation that familial background factors may have different effects on IPV perpetration experiences among men and women. In particular, the interaction between harsh parenting and gender was statistically significant, although in the opposite direction as was expected as harsh parenting had a stronger effect on IPV for men. The effect of harsh parenting in Model 6 is 0.646 - .753 x Female. It was therefore positive and significant for men with a coefficient of 0.646. For women the effect was 0.646 - 0.753 = - 0.107. Further testing showed the effect to be nonsignificant for women. Thus, as measured here, harsh parenting appeared to elevate the risk of IPV perpetration for men only.

Finally, Model 6 also included an interaction between parent-child relationship quality and gender. This interaction was not significant suggesting that there was no difference in the negative effect of PCRQ on IPV for men relative to women. The main effect of PCRQ remained marginally significant in

this model. Although this main effect applied only to men, the lack of an interaction with gender suggested that the effect applied equally to both men and women.

DISCUSSION

Despite the increasing empirical research on IPV over the past few decades, past studies have often limited their examination of family predictors to exposure to violence in the family of origin. Yet, the family environment entails much more than simply the presence or absence of abuse. This study has sought to examine additional ways in which familial background experiences contributed to intimate partner violence during adolescence and young adulthood. In particular, parent-child relationship quality was posited as an additional characteristic of the family experience, which may teach individuals that violence is an acceptable and normative way of interacting with others generally, and dealing with conflict more specifically, in their future relationships.

As supported in the literature (e.g., Parks et al., 2011; Renner & Whitney, 2012; Smith et al., 2011), exposure to violence in the family-of-origin, as measured by harsh parenting, was a significant predictor of adolescent and young adult experiences with IPV perpetration. Importantly, and contributing to literature in this arena, harsh parenting was a key determinant of men's IPV reports even after accounting for those factors which may have predisposed individuals to violence, or which served as mediators between family background and IPV in later life. In traditional logistic regression models, harsh parenting was associated with IPV perpetration for men and women (Smith et al., 2011; Swinford et al., 2000; Giordano et al., 2014, 2015). In the fixed-effects model, the effect of harsh parenting on IPV perpetration was statistically significant only for men, suggesting that unmeasured characteristics may account for more of the association between harsh parenting and IPV for women than men. These gender differences, once more fully explored and understood, are imperative to incorporate in any prevention or intervention efforts geared toward intervening in the intergenerational transmission of violence among adolescents and young adults.

Contributing to the literature on adolescent and young adult experiences with IPV, the findings presented here also demonstrated that parent-child relationship quality was an important predictor of violence in romantic relationships. As noted in regard to harsh parenting above, this finding was especially noteworthy given the use of fixed-effects analysis, which served to reduce any potential unmeasured heterogeneity among respondents by implicitly controlling for all time-stable characteristics. Thus, fixed-effects models provided greater confidence that the effects of familial background factors were not biased due to those respondent characteristics which were not directly included in the model. Although the effect was not as large as the effect of harsh parenting and reached only marginal significance in the full model, results indicated, as hypothesized, that individuals who reported higher parent-child relationship quality were less likely to report IPV perpetration. This finding supported the notion that individuals 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 the violence they experience via their parents (Bowlby, 1982). Moreover, although the significance of PCRQ in the present study ran counter to some past research examining harsh parenting and parent-child relationship quality simultaneously (Richards & Branch, 2012), some of this variation may be due to the difference in measurement of PCRQ (e.g., Hair et al. 2008; Miller et al., 2009), as well as the age of the sample under consideration. This potential conclusion is further supported by other studies which did find significant effects of PCRQ-similar constructs on IPV (e.g., Dutton, 1994; Dutton et al., 1996; Palazzolo et al., 2010; Wekerle et al., 2009). It is also important to note that the negative effect of PCRQ on IPV perpetration appeared to vary to some degree by age. In particular, parent-child relationship quality seemed to matter more for older than younger individuals. Such a finding is consistent with the notion that the quality of the parent-child relationship in young adulthood may signify more cumulatively positive or negative experiences throughout the life course. These findings, combined with the various ways in which PCRQ may be measured, indicate that more research is needed to explore the specific details of the relationship between PCRQ and IPV experiences.

Although PCRQ is important to account for on its own, it does not appear to interact with harsh parenting exposure. In other words, the present study did not support the previously hypothesized relationship (Simons et al., 2012; Straus & Gelles, 1990), that PCRQ moderates the effect of harsh parenting, such that greater PCRQ would actually amplify the positive effects of harsh parenting on IPV perpetration. Thus, although both parent-child relationship quality and harsh parenting are critical to our understanding of how individuals' families affect their relationships with romantic others, these two mechanisms appeared to operate largely independent of one another. Similarly, results indicated no significant gender differences in the effect of parent-child relationship quality on IPV, failing to support the hypothesis that greater PCRQ would be more protective for women than men in deterring experiences of IPV perpetration.

Although the present findings advance our understanding of familial influences on 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. 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. Second, only respondent reports were used for the measurement of IPV perpetration. Although issues of under- or over-reporting are possible with any self-reported data, this may be especially the case here given the absence of partner reports in the current dataset. The use of couple-level data is an important avenue for new advances. Third, although both harsh parenting and parent-child relationship quality were important predictors of IPV perpetration, the exact processes by which these associations unfold were not examined in the present analyses. For instance, although social learning theory presupposes that individuals exposed to harsh parenting are taught to see violence as an acceptable solution to conflict, or come to believe violence is a legitimate component of healthy, loving relationships, measures of respondents' attitudes toward violence were not examined.

Establishing family profiles based on longitudinal experiences of harsh parenting and PCRQ may also prove to be a valuable line of inquiry. For example, individuals who report more frequent harsh parenting over time, as well as those who have consistently poor relationships with their parents, may

exhibit markedly higher risk for violence with romantic partners. Finally, although the family is the first and primary agent of socialization, peer relationships are also central to individuals' development, particularly in the adolescent and young adult years (Newman, Lohman, & Newman, 2007; Waldrip, Malcolm, & Jensen-Campbell, 2008). Thus, future studies may want to include violence occurring within the peer network, as well as more general qualities of individuals' friendships overall.

Although continued research is needed to further explain variations in the risk of romantic relationship violence, the current study makes several strides to improve upon past research efforts. Through the use of fixed-effects analyses, the results presented here indicate that familial background factors influence individuals' propensity for violent offending in the context of romantic relationships, net of individuals' own problematic, deviant, and delinquent characteristics.

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Table 1. *Intimate Partner Violence 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 VARIABLE					
IPV Perpetration	13.26%	11.16%	17.37%	22.32%	13.58%
INDEPENDENT VARIABLES					
Harsh Parenting	22.48%	18.73%	14.35%	10.71%	10.95%
Parent-Child Relationship Quality	0.14	0.14	0.19	0.22	0.02
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 Length	4.79	5.49	5.89	6.72	7.16
BACKGROUND AGGRESSION					
Delinquent and Deviant Behaviors	1.14	1.15	1.16	1.14	1.09
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%
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	16.38	18.17	20.33	25.41

N = 950
Source: Toledo Adolescent Relationships Study
Note: Parent-Child Quality is standardized. Ranges: -18 -7; -18-7; -21-7; -21-7; -25-6

Table 2. *Fixed-Effects Regression for IPV Perpetration, Odds Ratios*

	Model 1 *b (SE)*	OR	Model 2 *b (SE)*	OR	Model 3 *b (SE)*	OR	Model 4 *b (SE)*	OR	Model 5 *b (SE)*	OR	Model 6 *b (SE)*	OR
INDEPENDENT VARS.												
Harsh Parenting	0.109 (0.142)	1.115	-0.015 (0.147)	0.985	0.173 (0.166)	1.189	0.207 (0.192)	1.230	-0.914 (0.764)	0.401	0.621* (0.262)	1.861
PCRQ			-0.042*** (0.013)	0.959	-0.034* (0.014)	0.967	-0.037* (0.016)	0.964	0.091 (0.060)	1.095	-0.052$^{\wedge}$ (0.027)	0.949
Harsh Parenting*PCRQ							0.010 (0.028)	1.010				
Harsh Parenting*Age									0.060 (0.039)	1.062		
PCRQ*Age									-0.006* (0.003)	0.994		
Harsh Parenting*Female											-0.759* (0.338)	0.468
PCRQ*Female											0.022 (0.032)	1.033
TIME-VARYING CORRELATES												
Sociodemographic Factors												
Age					-0.102*** (0.021)	0.903	-0.102*** (0.021)	0.903	-0.123*** (0.023)	0.884	-0.103*** (0.022)	0.902
Parental Home					-0.091 (0.166)	0.913	-0.090 (0.166)	0.914	-0.100 (0.167)	1.105	-0.100 (0.166)	1.105
Gainful Activity					0.034 (0.143)	1.035	0.033 (0.143)	1.034	0.065 (0.143)	1.067	0.044 (0.143)	1.045

N = 950 respondents; ^ p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001

Source: Toledo Adolescent Relationships Study

Table 2. *Fixed-Effects Regression for IPV Perpetration, Odds Ratios (cont'd)*

	Model 1 *b (SE)*	OR	Model 2 *b (SE)*	OR	Model 3 *b (SE)*	OR	Model 4 *b (SE)*	OR	Model 5 *b (SE)*	OR	Model 6 *b (SE)*	OR
TIME-VARYING CORRELATES												
Background Aggression												
Delinquency					0.322* (0.136)	1.380	0.323* (0.136)	1.381	0.357** (0.137)	1.429	0.319* (0.140)	1.376
Relationship-Specific Factors												
Current Relationship *(most recent omitted)*					-0.013 (0.132)	0.987	-0.012 (0.132)	0.988	-0.018 (0.133)	0.982	-0.035 (0.133)	0.966
Cohabiting *(dating omitted)*					0.321$^{\wedge}$ (0.195)	1.379	0.321$^{\wedge}$ (0.195)	1.379	0.348$^{\wedge}$ (0.197)	1.416	0.310 (0.196)	1.363
Married					0.236 (0.269)	1.266	0.235 (0.269)	1.265	0.319 (0.273)	1.378	0.201 (0.270)	1.223
Relationship Length					0.288*** (0.038)	1.334	0.288*** (0.038)	1.334	0.286*** (0.038)	1.331	0.286*** (0.038)	1.331

N = 950 respondents; ^ p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001

Source: Toledo Adolescent Relationships Study

Table A1. *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.	4.15 (1-5)	4.00 (1-5)	4.11 (1-5)	4.08 (1-5)	4.11 (1-5)
My parents trust me.	4.00 (1-5)	4.00 (1-5)	4.10 (1-5)	4.18 (1-5)	4.25 (1-5)
My parents sometimes put me down in front of other people.	3.94 (1-5)	3.93 (1-5)	4.10 (1-5)	4.07 (1-5)	4.24 (1-5)
My parents seem to wish I were a different type of person.	4.13 (1-5)	4.03 (1-5)	4.13 (1-5)	4.10 (1-5)	4.17 (1-5)
I feel close to my parents.	4.14 (1-5)	3.97 (1-5)	4.16 (1-5)	4.17 (1-5)	4.15 (1-5)
When you and your parents disagree about things, how often do you call each other names and insult one another?	5.27 (1-6)	5.27 (1-6)	5.38 (1-6)	5.44 (1-6)	4.20 (1-5)
When you and your parents disagree about things, how often you do yell at each other?	4.13 (1-6)	4.12 (1-6)	4.27 (1-6)	4.49 (1-6)	4.61 (1-5)

N = 950 respondents
Source: Toledo Adolescent Relationships Study
Note: Items are reported in means; ranges are shown in parentheses.