

Couple-Level Analysis of the Relation Between Family-of-Origin Aggression and Intimate Partner Violence

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Objectives: Using the actor-partner interdependence model (Kenny, 1996), the current study is the first to examine: (1) the relation among 4 forms of family-of-origin aggression (FOA), namely, father-to-mother, mother-to-father, father-to-child, and mother-to-child aggression, and subsequent experience with physical intimate partner violence (IPV) at the couple level; and (2) the gender-specific intergenerational transmission hypothesis. **Method:** A representative sample of 453 married or cohabiting heterosexual couples from the U.S. northeast completed self-report measures of IPV and FOA as part of a larger study on family and relationship violence. **Results:** Although both individuals’ (respondent effects) and partners’ (partner effects) FOA histories generally predicted physical IPV victimization and perpetration, dual-FOA couples were not at increased risk for IPV. Respondents’ interparental and partners’ parent-to-child aggression experiences were most predictive of IPV. Gender-specific transmission of aggression across generations was only partially supported. Last, mother-to-child aggression was a significant predictor in 3 of the 4 models. **Conclusions:** Findings support the intergenerational transmission of aggression (Widom, 1989) and social learning/cognitive (Bandura, 1977, 1997) theories, and suggest that both partners’ IPV and FOA (which often includes multitype maltreatment) experiences should be assessed and considered when developing prevention and treatment programs. Violence prevention parent training programs are also discussed.

Keywords: dyadic, family of-origin aggression, intergenerational, intimate partner violence, social learning

A wealth of research has examined the relation between growing up in a violent family of

origin and subsequent experience with intimate partner violence (IPV; e.g., Busby, Holman, & Walker, 2008; Hendy et al., 2003; Kalmuss, 1984). This association is the basis of the “cycle of violence” (Gelles, 1980), the intergenerational transmission of IPV model (Widom, 1989), and IPV social learning (Akers, 1998; Bandura, 1977) or social-cognitive (Bandura, 1997) theories accounting for this link. According to these theories, individuals who witness IPV between parental figures or who experience parent-to-child aggression during childhood are more likely to imitate and be tolerant of aggression in their close relationships. This chance is thought to be particularly heightened if the aggression to which they had been exposed resulted in positive consequences (Bandura, 1973), or if they were exposed to multiple aggressive models across relationships (Hendy et

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al., 2003). Support for these theories comes from numerous studies, including two meta-analyses. Stith et al. (2000) and Fritz (2003) indicated that for marital as well as dating relationships, there was a statistically significant small to moderate effect of exposure on IPV. Moreover, these findings held whether considering exposure to parent-to-child aggression or to interparental aggression as predictors and IPV perpetration or victimization as criterion variables. Thus, although the strength of the intergenerational transmission relation is not large, growing up in a violent home does indeed appear to place individuals at risk for being both a victim and a perpetrator of IPV. Given this, the purpose of the current study was to expand the literature by examining the relation between family-of-origin aggression (FOA) and subsequent IPV at the couple level.

Within the intergenerational transmission of IPV literature, a number of studies have investigated the specific effects of father-to-mother, mother-to-father, father-to-child, and mother-to-child aggression on IPV in an attempt to assess whether the transmission of IPV across generations is gender specific. Such research has drawn on the powerful effects of sex-linked modeling that have been demonstrated by researchers such as Bussey and Bandura (1984). To be truly gender specific (within heterosexual relationships), witnessing aggression perpetrated by the same-sex parent should be associated with perpetration of aggression by members of that same sex and with victimization of members of the other sex. Thus, father-to-mother aggression should be associated with male-perpetrated IPV and with female victimization. (The theory has not yet been applied to other than heterosexual relationships). The majority of studies have shown partial support for gender-specific transmission. That is, some research has found gender-specific transmission for either male or female participants, but not for both (e.g., Hendy et al., 2003), or for predictions related to either IPV victimization or perpetration, but not for both (Hendy et al., 2003; Jankowski, Leitenberg, Henning, & Coffey, 1999). Other research has found associations between FOA variables and subsequent IPV for both men and women more generally; that is, the transmission was not necessarily limited to parents and participants of the same sex (Avakame, 1998; Gover, Kaukinen, & Fox,

2008; Kalmuss, 1984). Still other research has found support for the effect of the other-sex parent (Dejonghe, 2008; Moretti, Obsuth, Odgers, & Reebey, 2006) or has failed to find a gender-specific effect altogether (Kwong, Bartholomew, Henderson, & Trinke, 2003; Langhinrichsen-Rohling, Neidig, & Thorn, 1995).

When considering the impact of parent-to-child aggression on subsequent IPV, social-cognitive theory (Bandura, 1997; Bussey & Bandura, 1984) similarly predicts that same-sex parents should be more influential models than parents of the other sex. It also suggests that relations with IPV victimization might be stronger than with perpetration, given that parent-to-child abuse survivors already have experience with being the victim (also referred to as role-specific transmission). Research, however, has produced mixed findings. Using a sample of 608 American university students, Hendy and colleagues (2003) reported that mother-to-child aggression was predictive of IPV perpetration and victimization for men and IPV victimization for women. In research based on a sample of nearly 200 military couples who were referred to treatment following a domestic dispute, Langhinrichsen-Rohling and colleagues (1995) similarly demonstrated a link between mother-to-child physical aggression and IPV perpetration for men and mother-to-child verbal aggression and IPV victimization for women. However, results also suggested that being victimized by one's father significantly predicted IPV victimization among both men and women. Alexander, Moore, and Alexander (1991) also found that severe physical aggression inflicted by fathers predicted physical and psychological IPV perpetration and victimization, but only among the men in their sample of almost 400 university students. In short, past research findings offer partial support for gender-specific models of transmission. Inconsistencies in findings across studies are likely due to a number of factors, including differences in samples, method, and measurement or conceptualization of FOA and/or IPV. Discrepant findings might also be the product of past research's failure to account for the impact of one partner's FOA history on the other partner in the intergenerational transmission process.

We find it surprising that despite the extensive research on the relation between FOA and IPV, none has considered the relation at the

level of the couple. Instead, research has focused on one member of a couple only. Thus, although it is known that exposure to FOA places individuals at risk of becoming involved in aggressive romantic relationships, the question of whether couples for whom one or both partners have experienced FOA are at greater risk for IPV has gone unexplored. Given that situational couple violence (Johnson, 1995), the most common form of IPV, is described as resulting from dynamic interactions between intimate partners in which one partner feels they have lost control and attempts to get it back, it seems important to consider the potential impact that each partners' past experiences (e.g., FOA) and attributes might have on the other and the other's behavior. Furthermore, it seems plausible that dual-FOA couples would be at greater risk for IPV, given that both members might believe that aggression is a viable means of resolving conflict. The present study therefore aimed to examine the relation between four forms of FOA, namely, father-to-mother, mother-to-father, father-to-child, and mother-to-child aggression, and physical IPV at the level of the couple.

Dyadic Intimate Partner Aggression Research

Although the majority of research on IPV has focused on individual models, assessment of dyadic factors has begun to receive increased attention. Using data from the Oregon Youth Study, Capaldi, Shortt, and Crosby (2003) found that physical and psychological IPV were stable across late adolescence into early adulthood for both young men and women if they remained in relationships with the same partner across time. This was not the case for the young men who recoupled with new partners across the time interval. In a similar vein, in a sample of 664 high school students from the U.S. east coast, Fritz and Slep (2009) found higher rates of stability across a 1-year interval among adolescents who remained with the same dating partners across time as compared to students who started new dating relationships across the time interval. In addition, longitudinal research conducted by K. D. O'Leary and Slep (2003) indicated that adolescents' partners' psychological and physical Time 1 dating aggression accounted for approximately 50% of the variance in participants' use of physical dating aggression

3 months later. Moreover, the cross-dyad influence in their sample was more predictive than participants' past (i.e., Time 1) aggression, indicating that dyadic factors were more predictive than individual factors. These findings suggest that dyadic factors play a substantial role in the maintenance of aggression in romantic relationships. These results complement other research that has shown that such dyadic-level variables as relationship conflict and hostility (e.g., Williams, Connolly, Pepler, Craig, & Laporte, 2008), communication patterns (e.g., Margolin, John, & Gleberman, 1988), partners' aggression (e.g., K. D. O'Leary & Slep, 2003; S. G. O'Leary & Slep, 2006), and substance consumption during aggressive incidents (e.g., Vatnar & Bjørkly, 2008) are predictive of IPV.

Advances in statistics also have improved analysis of dyadic data. Because we collected data from both husbands and wives, we used Kenny's (1996) actor-partner interdependence model (APIM), an analytical framework designed to handle the problem of nonindependence, a common issue with dyadic data, by accounting for both actor (the influence of an individual's predictor variable score on that same individual's outcome variable score) and partner (the influence of an individual's predictor variable score on his or her partner's outcome variable score) effects in the same analysis. Given that the variables of interest involve abuse perpetration and victimization, the term *respondent* will be used instead of *actor* for clarity.

Current Study

As indicated above, the current study is the first study to examine the relation between FOA and subsequent IPV at the couple level. In particular, we investigated the influence of both individuals' (respondent effects) and their partners' (partner effects) experiences with father-perpetrated (i.e., father-to-mother and father-to-child) and mother-perpetrated (i.e., mother-to-father and mother-to-child) aggression, respectively, on physical IPV. The present research also provides the first couple-level analysis of the gender-specific transmission model. Although evidence for gender-specific transmission at the individual level has been mixed, dyadic data might be better at detecting gender- and role-specific transmission. Thus, based on premises of social-

cognitive theory and gender- and role-specific hypotheses we predicted that: (1) both partners' experience with FOA would be predictive of physical IPV perpetration (i.e., there would be statistically significant respondent and partner effects in each of the models); (2) couples for whom both members had FOA experience (respondent by partner interaction) would be more likely to report IPV perpetration and victimization; (3) witnessing father-perpetrated aggression (especially father-to-mother FOA) would be more predictive of IPV perpetration for husbands than for wives and more predictive of IPV victimization for wives than for husbands; (4) witnessing mother-perpetrated violence (especially mother-to-father FOA) would be more predictive of wife-perpetrated IPV than husband-perpetrated IPV and more predictive of IPV victimization for husbands than wives; and (5) father-to-child FOA would more strongly predict victimization for husbands than wives and mother-to-child FOA would more strongly predict IPV victimization for wives than husbands.

Method

Participants and Procedures

Participants consisted of 453 predominantly White (80.7%) heterosexual couples from a metropolitan county in New York who were recruited from a representative sampling frame between 1999 and 2002 via random digit dialing techniques that were similar to those used in the 1985 National Family Violence Survey (Louis Harris & Associates, 1986). That is, adults who answered our telephone calls were informed that we were conducting a study on the ways in which families cope with conflict. Willing respondents completed a brief demographic interview to determine study eligibility. Inclusion criteria for the study required that couples be married or cohabiting for at least 1 year, coparents of at least one child between the ages of 3 and 7 years (with at least one member of the couple being the child's biological parent), and be able to complete procedures and questionnaires in English. Respondents who met inclusion criteria were then asked additional questions about family functioning. Finally, eligible, interested respondents received a second telephone call from a project director,

who provided a detailed description of the study and scheduled interested respondents to come to the laboratory to participate in the main study. Of the eligible and interested couples screened via random digit dialing, about 25% participated in the 6-hr study. As outlined in Slep, Heyman, Williams, Van Dyke, & O'Leary (2006), the overall response rate to the phone survey itself was 45%, phone survey participants were fairly representative of the recruitment county, and laboratory participants were quite representative of eligible families in general. Nevertheless, a few differences were found: Those who participated reported higher rates of relationship conflict and a wider variety of corporal punishment and were less likely to earn over \$100,000 than qualified nonparticipants. Compared to U.S. census data (2000 U.S. Census, 2003), people identifying as Latino/Hispanic, "other" race, and multiethnic were slightly undersampled, and African Americans, American Indians, married couples, couples aged 30- to 44-years-old, and middle income families were slightly oversampled (see Slep et al., 2006). Couples received \$250.00 for being in the study.

Couples who participated came to the university laboratory and completed either one 6-hr session or two 3-hr sessions. During the protocol, couples provided informed consent, completed self-report questionnaires, participated in two 10-min video-recorded conversations, and viewed a series of video-recorded acted conflict interactions while having some of their physiological responses (viz., heart rate, respiration, skin conductance, and blood pressure) monitored. This study focused on two self-report measures. Couples completed all self-report questionnaires in separate rooms and their responses were rendered anonymous. A more thorough description of the measures and procedures used in the larger study can be found in Slep and O'Leary (2005). The study was approved by an institutional review board.

The majority of couples in the current study were married (94.5%), and had been together an average of 9.5 ($SD = 4.4$) years. The terms *wives* and *husbands* will thus be used throughout. Mean ages were 37 years ($SD = 6.02$) for husbands and 35 years ($SD = 5.00$) for wives. The couples were relatively educated with an average of 14.24 years ($SD = 2.34$) of education for husbands and 14.28 years ($SD = 2.26$)

for wives. Most husbands (93.2%) were employed full-time, whereas wives were equally likely to be unemployed (32.2%), work part-time (37.7%), or work full-time (30%). Husbands' and wives' mean family yearly incomes were \$81,111 ($SD = \$43,330$) and \$77,314 ($SD = \$51,214$), respectively.

Measures

Partner aggression. The Physical Assault subscale of Revised Conflict Tactics Scale (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996), a 78-item inventory, was used to assess the frequency with which participants and their partners experienced and perpetrated minor (five items; e.g., "thrown something that could hurt," "slapped,") to severe (seven items; e.g., "kicked," "used a knife or gun") physical IPV in their relationships within the last year. Participants responded on a scale ranging from 0 (*never*) to 6 (*more than 20 times*). Separate scores for victimization ($\alpha = .83$ and $.87$ for husbands and wives, respectively) and perpetration ($\alpha = .80$ and $.77$ for husbands and wives, respectively) were calculated by summing the 12 items of each subscale. The CTS2 is widely used and has demonstrated adequate validity (Straus et al., 1996).

FOA. A modified version of the Family of Origin Aggression Scale (Rosenbaum & O'Leary, 1981) was used to measure the extent to which couples were exposed to father-to-mother, mother-to-father, father-to-child, and mother-to-child physical aggression during childhood. The frequency with which participants verbally and physically aggressed against their parents and participant-to-siblings and siblings-to-participant verbal and physical aggression were also assessed in this scale, but were not examined in the current study. Participants responded on a 5-point Likert scale ranging from 1 (*never*) to 5 (*very often*). Four items assessed physical interparental aggression, with two items inquiring about father-to-mother physical aggression (i.e., "Did your father hit your mother?" and "Did your father beat your mother?") and two parallel items assessing mother-to-father physical aggression. Eight items assessed parent-to-child physical aggression, with four items inquiring about mother-to-child physical aggression and four parallel items assessing father-to-child physical aggression

(e.g., "Were you hit by your mother/father?"; "Did you ever have cuts or bruises from your mother/father?"). We calculated the average of items in each of the four subscales to produce composite scores. Then, we centered participants' FOA scores by subtracting the grand mean of each of the four subscales from each individual's respective mean score to aid in interpretation of interactions (Hilbe, 2011). Cronbach's alphas for the current sample were $.89$ for father-to-mother, $.66$ for mother-to-father, $.89$ for father-to-child, and $.88$ for mother-to-child physical aggression. Past research using the current data set found the scale to correlate with such constructs as past history of aggressiveness and negative life events and to be uncorrelated with variables such as education level and family size (K. D. O'Leary, Slep, & O'Leary, 2007).

Results

Data Analysis

We used SPSS 19.0 to conduct the data analyses. In particular, we conducted a series of four negative binomial (NB) regressions using SPSS' generalized estimating equations (GEE) module because GEE accommodates both non-normal dependent and independent variables and mixed effect (i.e., nested) models. Although a more fitting analysis would likely have been zero-inflated mixed effects modeling (which is an extension of the above described model in that it also corrects for an excessive number of zeros in the count data), statistical code is not yet readily available for these models (Zuur, Ieno, Walker, Saveliev, & Smith, 2009). NB is similar to Poisson regression in that it deals with count data. However, unlike Poisson regression, which is based on the assumption that the variance equals the mean, NB accommodates models in which overdispersion occurs (when the variance is larger than the mean; see Table 1). We conducted separate NB models for father- (father-to-mother and father-to-child) and mother-perpetrated (mother-to-father and mother-to-child) FOA and for each criterion variable. Gender and the respondent and partner effects associated with father- or mother-perpetrated FOA, respectively, served as predictor variables in the models; family income (for IPV victimization models) and the two

Table 1
Mean Physical IPV and Interparental and Parent-to-Child Aggression by Gender

Type of aggression	Total ^a			Husbands ^b			Wives ^c			<i>t</i>
	%	<i>M</i> (<i>SD</i>)	Range	%	<i>M</i> (<i>SD</i>)	Range	%	<i>M</i> (<i>SD</i>)	Range	
IPV victimization	29.1	3.86 (4.83)	0–52	29.8	4.01 (4.77)	0–35	28.5	3.71 (4.89)	0–52	0.96
IPV perpetration	30.0	3.68 (3.98)	0–32	25.4	3.30 (3.71)	0–32	34.7	4.06 (4.21)	0–28	–2.87*
F2M FOA	19.4	0.61 (1.56)	0–8	17.2	0.47 (1.30)	0–8	21.7	0.75 (1.78)	0–8	–2.73**
M2F FOA	14.9	0.32 (0.96)	0–8	15.8	0.32 (0.88)	0–6	14.1	0.33 (1.03)	0–8	–0.17
F2C FOA	65.5	2.21 (3.08)	0–16	71.2	2.37 (3.07)	0–16	59.9	2.06 (3.08)	0–16	1.49
M2C FOA	75.1	2.60 (3.00)	0–16	78.4	2.75 (2.89)	0–16	71.7	2.45 (3.11)	0–16	1.51

Note. IPV = intimate partner violence; F2M = father to mother; FOA = family-of-origin aggression; M2F = mother to father; F2C = father to child; M2C = mother to child.

^a *N*s = 890 to 906. ^b *n*s = 443 to 453. ^c *n*s = 446 to 453.

* $p < .05$. ** $p < .01$.

remaining forms of FOA were covariates; couple membership was the Level 2 variable; and physical IPV perpetration and victimization were the criterion variables. We initially included three-way interaction terms between participants' FOA scores (respondent effects), participants' partners' FOA scores (partner effects), and gender and two-way interactions between respondent and partner FOA variables in each model. However, contrary to Hypothesis 2, none of the three-way and respondent by partner interaction interactions was significant. We thus excluded both sets of interaction terms from the final models for parsimony.

Given that interparental and parent-to-child aggression are interrelated (e.g., Saunders, 1994; Slep & O'Leary, 2005), we also controlled for the other two forms of FOA in each of the models. Results reported below reflect the effects found when controlling for the opposite forms of FOA, family income (in victimization models), and gender main effects, and the interactions between gender and respondent and partner effects, respectively. Because each model consisted of 11 or 12 predictor terms, we used a modified version of the Holm-Bonferroni procedure (Holm, 1979). In addition to significant results according to the Holm-Bonferroni method, results for which confidence intervals did not include the value zero were also reported (Hilbe, 2011).

Preliminary Analyses

Family income was significantly related to IPV victimization ($r = -.11, p = .001$), but not

IPV perpetration ($r = -.05, p = .124$); family income was thus controlled for in victimization models. Bivariate correlations among the four forms of FOA also revealed that all four forms of FOA were significantly positively related (r s = .08 to .47). We thus controlled for the other forms of FOA in each model. Last, although examining the relation between FOA and IPV injury was outside of the scope of the current study, exploratory injury analyses revealed different patterns of results, suggesting the present results do not generalize to injurious IPV.

Prevalence of IPV and FOA

Table 1 displays means, standard deviations, and prevalence rates of physical IPV and FOA by gender. As can be seen, wives tended to report significantly higher levels of IPV perpetration and father-to-mother aggression. Other notable Table 1 findings include: (a) father-to-mother FOA mean levels were roughly twice as high as mother-to-father FOA mean scores, especially among wives; and (b) prevalence rates of parent-to-child aggression were substantially higher than rates of interparental and partner aggression.

In terms of the overlap in FOA and IPV, of those who experienced at least one form of father-perpetrated (i.e., father-to-mother or father-to-child) FOA, 18.4% (19.2% husbands, 17.5% wives) witnessed mother-to-father FOA, 83.4% (84.1% husbands, 82.5% wives) experienced mother-to-child FOA, 32.1% (31.7% husbands, 32.5% wives) reported IPV victimization, and 33.1% (28.4% husbands, 38.5%

wives) reported IPV perpetration. Of those who reported at least one act of mother-perpetrated (i.e., mother-to-father or mother-to-child) FOA, 22.3% (20.4% husbands, 24.4% wives) witnessed father-to-mother FOA, 72.8% (76.0% husbands, 69.3% wives) experienced father-to-child FOA, 31.4% (33.1% husbands, 29.5% wives) reported IPV victimization, and 32.4% (28.2% men, 37.0% women) perpetrated IPV.

Respondent, Partner, and Gender Main Effects and Covariate Effects

Tables 2 and 3 present the NB regression results for physical IPV. In partial support of our first hypothesis, which predicted significant respondent and partner effects, four significant respondent effects and two significant partner effects were in the hypothesized direction, indicating that, for some models, individuals' and partners' FOA experiences were associated with higher levels of IPV perpetration and victimization (see rows 2–5 of Tables 2 and 3). Individuals' own experiences with witnessing interparental aggression whereas partners' experiences with parent-to-child FOA were most predictive of respondents' IPV. For respondent effects, the interparental variable was significant in three of the four models, and the parent-to-child variable was significant in the remaining model. Interpretations of the risk ratios (i.e., $\exp(B)$) indi-

cated that higher levels of respondents' reports of father-to-mother and mother-to-child FOA predicated increases in IPV victimization by 31% and 17%, respectively, and that higher levels of self-reported father-to-mother and mother-to-father FOA predicted increases in IPV perpetration by 40% and 39%, respectively.

For partner effects, partners' reports of father-to-child FOA were associated with increases in respondents' reports of both IPV perpetration and victimization (by 10% and 11%, respectively). However, in contrast to hypotheses, higher levels of partners' reports of mother-to-child aggression actually predicted lower levels of respondents' reports of IPV perpetration, such that for each unit increase in partners' reports of mother-to-child aggression, respondents' rates of IPV perpetration decreased by 11%. No partner effects were significant when predicting IPV victimization from mother-perpetrated FOA.

In contrast to raw means, gender main effects in the NB regressions suggested that women reported significantly less IPV perpetration (but not victimization) than men, such that being female was associated with 22% and 21% decreases in IPV perpetration in father- and mother-perpetrated models, respectively. Last, although neither of the father-perpetrated FOA variables

Table 2
Summary of Father-Perpetrated Mixed Effects Negative Binomial Regression Analyses for Physical Intimate Partner Violence (IPV)

Variable	IPV victimization			IPV perpetration		
	<i>B</i> (<i>SE</i>)	95% CI of <i>B</i>	Exp (<i>B</i>)	<i>B</i> (<i>SE</i>)	95% CI of <i>B</i>	Exp (<i>B</i>)
Constant	1.13* (.11)	0.91, 1.36	3.10	1.41* (.05)	1.32, 1.51	4.10
F2M res	0.27* (.08)	0.11, 0.43	1.31	0.34* (.07)	0.20, 0.47	1.40
F2M part	-0.05 (.08)	-0.21, 0.12	0.96	-0.06 (.07)	-0.19, 0.08	0.95
F2C res	-0.01 (.04)	-0.09, 0.07	0.99	-0.01 (.03)	-0.07, 0.06	0.99
F2C part	0.10* (.04)	0.02, 0.18	1.11	0.09* (.04)	0.02, 0.17	1.10
Gender	0.03 (.08)	-0.13, 0.19	1.03	-0.26* (.07)	-0.39, -0.12	0.78
Income	0.00 (.00)	-0.00, 0.00	1.00	—	—	—
M2F covariate	-0.02 (.05)	-0.12, 0.08	0.98	0.02 (.04)	-0.07, 0.10	1.02
M2C covariate	0.04* (.02)	0.01, 0.07	1.04	0.03* (.01)	0.01, 0.06	1.03
F2M Res × Gen	-0.14* (.05)	-0.25, -0.03	0.87	-0.18* (.04)	-0.26, -0.10	0.83
F2M Par × Gen	0.09 (.06)	-0.02, 0.20	1.09	0.09 (.05)	-0.01, 0.18	1.09
F2C Res × Gen	0.02 (.03)	-0.03, 0.07	1.02	0.02 (.02)	-0.02, 0.06	1.02
F2C Par × Gen	-0.06 (.03)	-0.11, -0.00	0.95	-0.06* (.02)	-0.10, -0.01	0.95

Note. F2M res = father-to-mother respondent effects; F2M par = father-to-mother partner effects; F2C res = father-to-child respondent effects; F2C par = father-to-child partner effects; GEN = gender.

* $p \leq .015$.

Table 3

Summary of Mother-Perpetrated Mixed Effects Negative Binomial Regression Analyses for Physical Intimate Partner Violence (IPV)

Variable	IPV victimization			IPV perpetration		
	<i>B</i> (<i>SE</i>)	95% CI of <i>B</i>	Exp (<i>B</i>)	<i>B</i> (<i>SE</i>)	95% CI of <i>B</i>	Exp (<i>B</i>)
Constant	1.12* (.12)	0.87, 1.36	3.06	1.38* (.05)	1.28, 1.48	3.97
M2F res	0.17 (.13)	-0.09, 0.43	1.19	0.33* (.12)	0.08, 0.57	1.39
M2F part	0.11 (.13)	-0.15, 0.36	1.11	0.11 (.10)	-0.10, 0.31	1.11
M2C res	0.15* (.05)	0.06, 0.25	1.17	0.07 (0.04)	-0.01, 0.15	1.07
M2C part	-0.07 (.04)	-0.15, 0.01	0.93	-0.12* (.04)	-0.19, -0.04	0.89
Gender	0.04 (.09)	-0.13, 0.21	1.04	-0.24* (.07)	-0.38, -0.10	0.79
Income	0.00 (.00)	-0.00, 0.00	1.00	—	—	—
F2M covariate	0.03 (.03)	-.04, 0.10	1.03	0.04 (.03)	-0.01, 0.09	1.04
F2C covariate	0.02 (.01)	-0.01, 0.04	1.02	0.02 (.01)	0.00, 0.05	1.02
M2F Res × Gen	-0.12 (.08)	-0.27, 0.04	0.89	-0.19* (.07)	-0.33, -0.04	0.83
M2F Par × Gen	-0.02 (.08)	-0.18, 0.14	0.98	-0.03 (.07)	-0.16, 0.11	0.98
M2C Res × Gen	-0.07* (.03)	-0.13, -0.02	0.93	-0.02 (.03)	-0.07, 0.03	0.98
M2C Par × Gen	0.06 (.03)	0.00, 0.11	1.06	0.08* (.02)	0.04, 0.13	1.09

Note. M2F res = mother-to-father respondent effects; M2F par = mother-to-father partner effects; M2C res = mother-to-child respondent effects; M2C Par = mother-to-child partner effects; GEN = gender.

* $p \leq .015$.

were significant covariates in models predicting IPV from mother-perpetrated FOA, mother-to-child FOA was a significant covariate in models predicting IPV victimization and perpetration from father-perpetrated FOA.

Gender- and Role-Specific Transmission

To assess whether transmission of IPV was gender- or role-specific, gender by respondent and gender by partner interactions were included in each of the negative binomial regressions (last four rows of Tables 2 and 3). As recommended by Hilbe (2011), we calculated incidence rate ratios using the following equation to aid in the interpretation of significant interactions: $\exp(B_1 + B_3 * \text{FOA})$, where B_1 is the gender coefficient, B_3 is the gender by respondent (or partner) interaction coefficient, and possible values for interparental (0 to 8) and parent-to-child (0 to 16) aggression were substituted for FOA, respectively. Figures 1 and 2 plot the significant gender by respondent and gender by partner interactions. Mixed evidence was found for both gender- and role-specific transmission. Beginning with Hypothesis 3 that predicted gender-specific transmission for father-perpetrated aggression, the father-to-mother respondent by gender interaction when predicting IPV perpetration suggested gender-specific transmission. Wives who re-

ported no (i.e., FOA = 0) to high (i.e., FOA = 8) levels of father-to-mother FOA had approximately 23% to 82% lower IPV perpetration scores, respectively, than husbands, suggesting that husbands tended to imitate their fathers' violence more than wives did. However, this same pattern did not hold up for IPV victimization. Contrary to gender-specific transmission, wives who reported low (1) to high (8) levels of father-to-mother FOA had approximately 10% to 67% lower IPV victimization scores, respectively, than husbands when controlling for all other predictors in the model. Thus, husbands who witnessed their fathers aggress against their mothers reported higher rates of both victimization and perpetration than wives who were similarly exposed to father-to-mother FOA.

Unlike the mixed support offered by father-perpetrated FOA analyses, support was not found for the hypothesis that witnessing mother-perpetrated FOA would be more predictive of wife-perpetrated IPV than husband-perpetrated IPV (Hypothesis 4). Instead, results indicated that wives who reported no (0) to high levels (8) of mother-to-father FOA had approximately 22% to 83% lower IPV perpetration scores, respectively, than husbands. Husbands were thus more likely to imitate their mothers' aggression than wives were. Furthermore, the mother-to-father FOA respon-

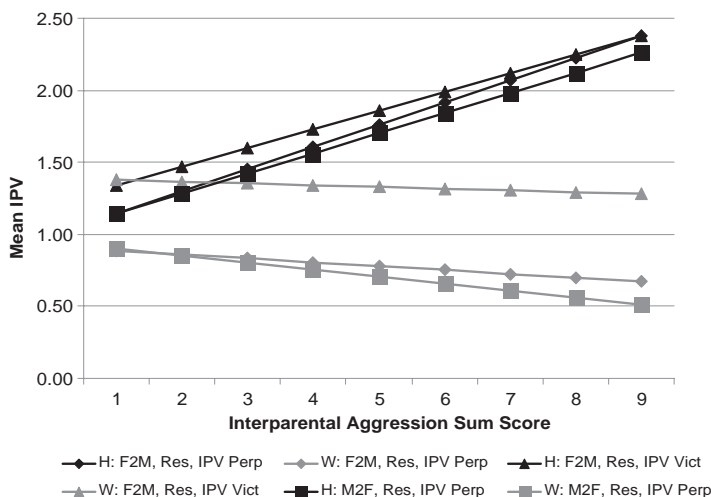


Figure 1. Interaction effects between respondents' interparental aggression and gender when predicting mean physical intimate partner violence (IPV) perpetration and victimization. Compared to husbands (H), wives (W) reported lower rates of IPV across higher levels of father-to-mother (F2M) and mother-to-father (M2F) aggression. Res = Respondent; Perp = perpetration; Vict = victimization.

dent by gender interaction in the IPV victimization model was not statistically significant, and therefore failed to support the gender-specific hypothesis as well.

Mixed results were found for role-specific transmission as well (Hypothesis 5). Only one respondent parent-to-child aggression by gender interaction was significant, and it was in the

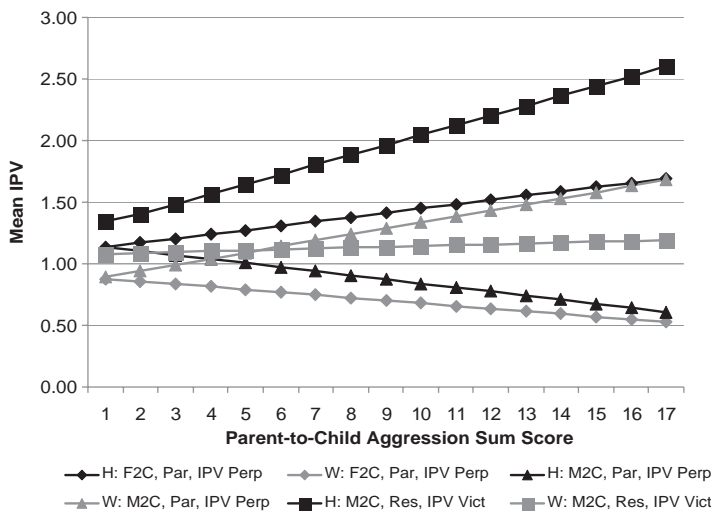


Figure 2. Interaction effects between respondents' and partners' parent-to-child physical aggression and gender when predicting mean physical intimate partner violence (IPV) perpetration and victimization. Except when predicting IPV perpetration from partners' reports of mother-to-child (M2C) aggression, wives (W) reported lower rates of IPV across higher levels of their and their partners' exposure to father- and mother-to-child aggression. H = husband; Par = Partner; Res = Respondent; F2C = father to child; Perp = perpetration; Vict = victimization.

gender- rather than role-specific direction (second-to-last row of Table 3). Wives who reported mother-to-child physical aggression had 4% (FOA = 1) to 68% (FOA = 16) lower victimization scores than their husbands, respectively, suggesting that the wives were imitating their mothers' aggressiveness. In a similar way, the significant partner by gender interaction predicting IPV perpetration in the father-perpetrated model (last row of Table 2) was also consistent with gender- but not role-specific transmission in that wives married to husbands who experienced father-to-child physical FOA reported roughly 23% (FOA = 0) to 69% (FOA = 16) lower IPV perpetration scores, respectively, than husbands. Thus, husbands with aggressive fathers perpetrated more IPV than their wives did. Also contrary to role-specific transmission, we did not find husbands of aggressive fathers to report higher levels of IPV victimization. Role-specific transmission was nevertheless found in the mother-perpetrated model (last row of Table 3). Whereas wives of husbands who reported no to very low levels of mother-to-child physical abuse (FOA = 0 to 2) had approximately 8% to 22% lower IPV perpetration scores, respectively, than husbands, wives of husbands who reported low to high levels of mother-to-child physical FOA (FOA = 3 to 16) had roughly 1% to 192% higher IPV perpetration scores, respectively, than husbands did. That is, wives of husbands who either were not abused by their mothers or who received mild mother-to-child abuse perpetrated less IPV than husbands, but wives of husbands who experienced moderate to high mother-to-child abuse reported more IPV than their husbands did. This pattern of results is consistent with role-specific transmission in that men who were victimized during childhood were also victimized in their adult relationships.

Discussion

The current study contributes to the literature in several key ways. First, it provides the first examination of the impact of respondent and partner effects on the relation between father-to-mother, mother-to-father, father-to-child, and mother-to-child aggression and subsequent experience with physical IPV in a large sample of community couples. In partial support of Hypothesis 1 that stated that both partners' expe-

rience with FOA would be predictive of IPV, roughly half of the respondent and partner effects were significant (and in the hypothesized direction except for one effect), with respondents' reports of interparental aggression and partners' reports of parent-to-child aggression being most predictive of IPV. Incidence rate ratios suggest that respondent interparental variables are more influential than parent-to-child variables. These findings are not surprising because one would expect individuals' FOA histories to be more predictive of individuals' later life experiences than partners' childhood experiences. In a similar way, the stronger relation between exposure to interparental (vs. parent-to-child) aggression and IPV may be due to the direct modeling effects involved with interparental aggression. Such findings thus provide the first support for the intergenerational transmission (Widom, 1989) and social-cognitive (Bandura, 1997) models of IPV using couple-level data, and are consistent with a wealth of research conducted at the individual level (e.g., Stith et al., 2000). They are also consistent with the developmental-interactional perspective (Capaldi & Gorman-Smith, 2003), which emphasizes the importance of dynamic patterns of interaction among couples in predicting IPV.

Nevertheless, one significant partner effect, partners' reports of mother-to-child FOA, was contrary to Hypothesis 1. In particular, partners' mother-to-child FOA was predictive of lower rates of respondents' IPV perpetration against current partners, suggesting that wives of husbands who experienced mother-to-child FOA were less likely to perpetrate IPV against their husbands. This effect is especially surprising given that respondent effects associated with mother-to-child FOA were significant and positive in three of the four models, including both victimization models. Further research is needed to help explain this contradictory finding.

Second, the present study is the first to address the question of whether couples for whom both partners came from violent homes are at greatest risk for IPV through synergistic effects. Contrary to Hypothesis 2, none of the respondent by partner interactions was significant. Given what is known about assortative mating and dyadic conflict processes (e.g., coercive cycles; Patterson, 1982), it seems likely that couples in which both members were exposed to FOA would be at increased risk for IPV and perhaps even exponentially (Kwong

et al., 2003). The present findings did not support this assertion. These nonsignificant moderation analyses might be reflective of the community-based sample. Clinical samples might have more variability in exposure to FOA and might, in turn, provide more powerful tests of interactive effects.

Third, this study speaks to gender-specific models of intergenerational transmission within the context of both members of the couple. Similar to past research (e.g., Hendy et al., 2003; Kwong et al., 2003; Moretti et al., 2006), mixed support was found for gender-specific transmission (and for Hypotheses 3 to 5), with three of the six significant gender by respondent or partner interactions being gender specific and three not. However, when considering these results in conjunction with the 10 additional nonsignificant interactions and the lack of a clear pattern of significant effects, modest support for gender-specific transmission is offered at best. Thus, it seems likely that other factors besides gender may be involved in or concomitantly contribute to (in more complex or multivariate models) the transmission of IPV across generations (e.g., FOA severity, identification with parental figures, family composition). For instance, one of the analyses (the gender by mother-to-child partner effect interaction predicting IPV perpetration) supported role-specific rather than gender-specific transmission. That is, consistent with role-specific transmission (Hypothesis 5), wives of husbands who reported moderate to high levels of mother-to-child physical FOA had higher IPV perpetration rates than husbands, indicating that these men were victims of female-perpetrated violence in childhood and adulthood. Thus, the current research does not support a fully gender-based model of the intergenerational transmission. Likewise, only minimal support for role-specific transmission was found as well.

Fourth, although not related to a specific hypothesis, the present research also speaks to the impact of exposure to multiple forms of FOA. In three of the four models (all except the model predicting IPV victimization from mother-perpetrated FOA), interparental respondent effects and parent-to-child partner effects were significant. In addition, mother-to-child FOA was a significant covariate in both of the father-perpetrated models. These results thus replicate the finding that multiple forms of FOA frequently co-occur within families (e.g., Appel &

Holden, 1998; Moretti et al., 2006; Slep & O'Leary, 2005). They also suggest that even when controlling for other forms of FOA (and a variety of other factors) effects are strong enough for multiple forms of FOA to emerge as significant predictors in the same model. Moreover, mother-to-child aggression appears to be an especially consistent predictor of IPV as it was significant in three of the four models. This finding is consistent with research that has similarly found mother-perpetrated FOA to be particularly related to IPV (Hendy et al., 2003; Moretti et al., 2006). One explanation for this is that mothers typically serve as primary attachment figures for their children (Doherty & Feeney, 2004), and that they might therefore play a particularly influential role in children's development of interpersonal and conflict-resolution skills (Moretti et al., 2006). Taken together, these results show the importance of assessing and controlling for multiple forms of FOA, and suggest that mother-to-child FOA should be a risk factor of particular interest.

Last, analysis of mean levels of participants' FOA and IPV suggest several interesting patterns. For instance, in line with past research using community samples of women (e.g., Archer, 2000), wives reported higher levels of IPV perpetration. They also reported higher rates of father-to-mother aggression than husbands. Across participants, father-to-mother aggression scores were roughly twice as high as mother-to-father scores. Such findings support research that suggests that individuals are more likely to recall behaviors that are gender role consistent than gender role inconsistent (e.g., Frawley, 2008). Finally, participants provided higher rates of parent-to-child than interparental aggression. Given that the FOA measure included items inquiring whether participants' parents "hit" them and the relatively high rate of use of corporal punishment (e.g., Straus, 2001), it is not surprising that participants reported higher levels of parent-to-child aggression than interparental aggression. In addition, participants were party to all acts of parent-to-child aggression, but likely not all acts of interparental aggression.

Limitations

The following limitations should be noted. First, couples provided retrospective self-reports of both family of-origin and IPV. Prospective and multimethod research, although

incredibly difficult to conduct with respect to intergenerational transmission of IPV, particularly if it is at the couple level, would prove helpful in furthering our knowledge about the influence of FOA on subsequent IPV. Second, IPV was measured by the CTS2 (Straus et al., 1996), which has been criticized for underestimating true levels of IPV and for failing to account for the context and meaning of IPV, spontaneous aggression, and aggression resulting from controlling behavior (e.g., Dobash, Dobash, Wilson, & Daly, 1992). Third, although our sample was quite representative of the population from which it was drawn, it did not match the population's characteristics perfectly (Slep et al., 2006). As with all community samples, although results generalize fairly broadly, they do not generalize to specific subgroups within the sample (e.g., unmarried, divorced, minority, and childless couples). In addition, because we recruited English-speaking couples who were either married or had been cohabiting for at least 1 year and who had at least one child between the ages of 3 and 7 years and a telephone, generalizability is limited to couples with these attributes. Finally, participants reported on IPV that occurred within the last year only. Given that the current sample tended to be older than the age at which IPV peaks (K. D. O'Leary, 1999), it is likely that at least some participants experienced IPV in the past, and that these prior experiences might also have contributed to current levels of IPV.

Clinical and Policy Implications

Results of the present study have important implications for IPV prevention and intervention. Because both respondents' and partners' experiences with FOA were predictive of IPV, it is important for clinicians to consider and assess both partners' reports of IPV and FOA when identifying and targeting individuals and couples for IPV prevention and intervention. This might require clinicians to help couples understand how their partners' experiences might affect their own behavior. Fortunately, results did not suggest that dual-FOA couples are at particularly heightened risk for IPV. Nevertheless, evidence at the main effect level still warrants the need for prevention and interven-

tion programs to address couples' experiences with family violence.

Modest support for gender- and role-specific models of transmission suggests that prevention and intervention efforts need not emphasize gender in the transmission of violence across generations, but should instead focus on the generally negative impact that any family violence can have on couples' adult romantic relationships. Sustaining mother-to-child aggression appears to have the most consistent adverse effects on adult relationships for both genders. Thus, violence prevention efforts involving parent training might be particularly beneficial.

Last, the present research suggests that because victims of family violence are likely to have been exposed to multiple forms of FOA and that various forms of FOA are differentially related to IPV, clinicians should assess for each form of FOA separately. Moreover, prevention and treatment efforts should be developed with these findings in mind. Finally, the findings suggest the need for family violence prevention and "early relationship" enhancement programs.

Research Implications

The current study has several important implications for future research. Findings suggest that: (a) IPV and FOA data should be collected from both members of the couple; (b) cross-informant effects should be examined; (c) because the gender- and role-specific literatures are mixed, future research should continue to consider other variables that might impact the transmission process, including other couple-level factors and multivariate models; (d) subtypes of FOA should be measured separately and the impact of multiple forms of FOA on IPV should be studied further; and (e) prospective and multimethod research should be conducted to further our knowledge about the influence of FOA on subsequent IPV at the couple level.

Conclusions

The present study is the first to demonstrate, using couple-level analyses, a relatively large representative sample of community couples, and statistical methods designed for noninde-

pendent count data, that although both partners' experiences with FOA are important to consider in predicting intimate partner violence, couples for whom both partners have a history of FOA are not necessarily at greater risk for IPV. It therefore offers some support for the intergenerational transmission (Widom, 1989) and social learning/cognitive (Bandura, 1977, 1997) theories of IPV, and is, generally speaking, consistent with a plethora of research that has established a link between FOA and IPV at the person level (e.g., Stith et al., 2000). It does not, however, provide strong evidence for gender- or role-specific transmission across generations, but instead suggests that mother-to-child FOA might have a particularly consistent influence on IPV, and that individuals and couples with histories of family violence have likely been exposed to multiple forms of FOA. At present, the current findings highlight the need to assess both members of the couple for FOA and to consider both members' FOA experiences when targeting individuals and couples for prevention and intervention initiatives.

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