Witnessing Interparental Psychological Aggression in Childhood: Implications for Daily Conflict in Adult Intimate Relationships

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ABSTRACT We examined the consequences of witnessing interparental psychological aggression in childhood for daily conflict processes in adult intimate relationships. Both partners in 73 heterosexual couples provided daily diary reports of relationship conflict over a 28-day period. Partners' reports of witnessing mother-to-father and father-to-mother psychological aggression were used to predict exposure to daily relationship conflicts and reactivity to those conflicts (as reflected in end-of-day anger). Results showed no evidence of exposure effects: Witnessing interparental psychological aggression was unrelated to the number of conflict days reported by either partner. Reactivity effects emerged for males only, with father's aggression predicting increased reactivity and mother's aggression predicting the opposite. However, we found evidence of direct or unmediated effects of

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interparental conflict on daily anger for both males and females. Mirroring the reactivity pattern, the same-sex parent's psychological aggression predicted greater daily anger, whereas the opposite-sex parent's aggression predicted less daily anger. These effects emerged independently of Big Five measures of personality; moreover, Big Five measures did not predict outcomes independently of interparental aggression.

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Extensive research has been conducted in recent decades on the effects of divorce and marital conflict on children (Davies & Cummings, 1994; Emery, 1982). Marital conflict and divorce have been found to affect children's psychological well-being (Amato & Keith, 1991; Emery & O'Leary, 1984), conduct problems (Jouriles, Pfiffner, & O'Leary, 1988), and delinquency (Loeber & Stouthamer-Loeber, 1986). In addition, marital conflict has proven to be a more effective predictor of negative outcomes in children than divorce itself (Amato, Loomis, & Booth, 1995; Emery, 1982).

Few studies, however, have examined the ways in which marital conflict in the family of origin affects adult intimate relationships. One likely way such effects may be evident is in patterns of engaging in and resolving conflict. There are several lines of research that support this view. First, poor parental models of negotiation and problem solving provide little opportunity for children to develop such skills themselves (Davies & Cummings, 1994; Grych & Fincham, 1990). Children who witness repeated acrimonious interparental conflict might come to associate marital conflict with greater negative affect than do children whose parents engaged in more constructive conflict resolution. As adults, they may therefore have difficulty avoiding conflict through negotiation, and they may also react more negatively to conflict when it occurs.

Second, witnessing interparental aggression may have implications for the ways in which children process social information and behave in interpersonal interactions (Crick & Dodge, 1994; Grych & Fincham, 1990). Over time, patterns of social information processing can become entrenched as stable attributes of personality (Crick & Dodge, 1994).

Third, research into the effects of repeatedly witnessing destructive interparental conflict on children has indicated that children can develop enduring mental representations of how conflict proceeds in intimate relationships (Duggan, O'Brien, & Kennedy, 2001; O'Brien, Balto, Erber, & Gee, 1995; O'Brien & Chin, 1998). Young adults who witnessed interparental physical aggression have been shown to differ from individuals who witnessed more amicable interparental conflict resolution in their cognitive and emotional responses to novel marital conflict situations (Duggan et al., 2001; O'Brien et al., 1995).

In one such study, individuals who had witnessed physical aggression between their parents reported more negative feelings (e.g., anger, sadness, anxiety, fear) while listening to simulated marital conflicts than those from nonviolent homes, regardless of the intensity of the simulated conflict (O'Brien et al., 1995). In addition, individuals who witnessed interparental physical aggression were less likely to suggest constructive alternatives to resolving the simulated conflict, and they reported more physiological arousal while listening to high intensity conflict (O'Brien et al., 1995).

Bolstering the idea that these effects persist at least into young adulthood, Duggan and colleagues (2001) found that college students who were exposed to interparental violence in childhood made significantly more negative outcome predictions while listening to simulated marital conflict than did participants from nonviolent homes. The difference between the two groups emerged only in their spontaneous reactions to the conflict; after a period of reflection, participants from violent homes resembled their counterparts from nonviolent homes in their predictions of negative outcome. This suggests that the effects of witnessing interparental violence function somewhat automatically, but can be counteracted through reflection (Duggan et al., 2001).

Although research to date has focused primarily on the formation of mental representations through witnessing interparental violence, other types of destructive interparental conflict behavior, such as psychological aggression (e.g., the use of verbal assaults and/or other, nonviolent forms of aggression, such as withdrawal), may result in the formation of similar cognitive structures. Further study of the effects of witnessing psychologically aggressive interparental conflict is warranted, given that such aggression is damaging in and of itself, and it often leads to physical aggression (e.g., Murphy & O'Leary, 1989; O'Leary, Malone, & Tyree, 1994; Sabourin, Infante, & Rudd, 1993).

Clearly, there is much to be gained from extending the investigation of the effects of interparental aggression to explore its enduring impact on conflict in adult relationships. Building on prior work by Bolger and Schilling (1991) and Bolger and Zuckerman (1995) studying personality in the stress process, we sampled couples, obtained retrospective reports from each partner of exposure to interparental psychological aggression, and subsequently conducted a prospective 28-day daily diary study to observe occurrences of conflict, as well as each partner's anger reactivity to each conflict.

A Daily Diary Approach to Studying Personality and Conflict in Relationships

The daily diary format offers a unique advantage over methods traditionally used in this area of research, methods that have relied on retrospective self-reports of childhood experience and current intimate relationships (e.g., McNeal & Amato, 1998; VanLear, 1992). Although one must typically rely on retrospective self-reports of interparental conflict, daily diaries yield concurrent reports of conflict that are less prone to memory biases. Daily diaries also yield multiple, within-subject observations that allow repeated patterns of conflict behavior to be identified. The longitudinal structure of diary data permits analysis of the sequence of conflict events and outcomes. Finally, between-subject analyses permit the determination of whether participants' patterns of conflict vary systematically as a function of prior witnessing of interparental conflict.

Prior diary work by Bolger and Schilling (1991) and Bolger and Zuckerman (1995) found that there were individual differences in exposure and reactivity to daily conflicts and that these individual differences could be explained in part by the personality dimension of neuroticism (also known as emotional stability). A recent study has linked a second global personality trait, agreeableness, to daily conflict processes. Jensen-Campbell and Graziano (2001) found that people low in agreeableness were more likely to show angry responses to conflict, to use more destructive tactics during conflict, and to have fewer conflicts resolved over time. Given that these global traits are related to daily conflict processes, it seems important to ascertain whether witnessing interparental aggression shows effects independent of them. Moreover, in contrast to personality traits that are thought to operate across a variety of situations, we hypothesized that the effects

of interparental aggression would be strongest in the specific context of conflict with an intimate partner.

We propose that witnessing interparental psychological aggression can influence daily conflict and anger in adult intimate relationships in three ways. These links are displayed in Figure 1. We expect to find that childhood witnessing of interparental psychological aggression is associated with greater exposure to relationship-conflict events, events that, in turn, increase end-of-day anger. In addition, because destructive interparental conflict is associated with sensitization to conflict in children (Davies, Myers, Cummings & Heindel, 1999; El-Sheikh, 1994), we expect witnessing interparental psychological aggression to predict increased reactivity to relationship conflicts, that is, increased anger on days when such conflicts occur. Finally, because witnessing interparental aggression may influence exposure and reactivity to conflicts generally or one's general tendency to feel anger, it may predict end-of-day anger even when conflicts in intimate relationships are taken into account (the direct or unmediated effect).

Although modeled on the earlier diary work by Bolger and Schilling (1991) and Bolger and Zuckerman (1995), the current study contains several important innovations. First, our diary design involved two, rather than one, reports per day, once in the morning and once at night. In this way it is possible to examine how conflict on a given day is related to change in distress over the course of that day, rather than relying on residual effects the following day, as Bolger and Zuckerman (1995) did. Second, this study distinguishes

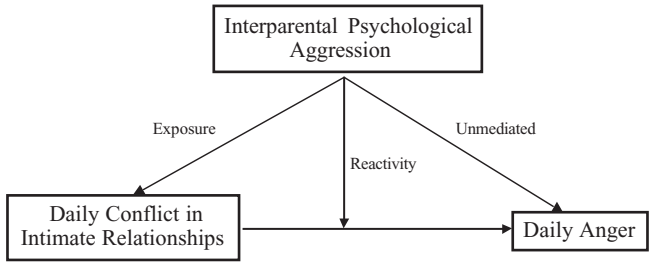

Figure 1
Links between childhood exposures to interparental psychological aggression, daily conflicts in intimate relationships in adulthood, and daily anger.

self-reported from jointly reported conflicts. It seems plausible that conflicts that both members of a couple agree occurred will be more consequential than those that are self-reported only. Finally, this study uses novel statistical methods to take into account multiple sources of dependency in the couple diary data. In addition to taking account of within-person dependencies due to autocorrelated residuals (see Bolger & Schilling, 1991), it is important to take account of possible dependencies due to unmeasured couple-level processes. For example, a couple's unmeasured (or unreported) exposure to a stressful event such as a child's health problem could lead each partner's residual distress on a given day to be positively correlated, the consequences of which would be overly liberal tests of significance. Our analysis approach estimates and adjusts for both types of dependence. To our knowledge, this specification has not been used in diary analyses to date.

METHOD

Participants and Procedure

Couples in long-term, committed relationships (either married or cohabiting for at least 6 months) were recruited to participate in this study. Approximately 2,500 flyers were posted and placed in graduate students' mailboxes in various fields of study at a private, urban university.

Interested couples contacted the researchers by phone or email to receive more information about the study. Couples who responded to the flyer were encouraged to mention the study or forward information via e-mail to other couples that they thought might be interested in participating. We received 114 inquiries, and 102 couples agreed to participate.

Couples who elected to participate in the study were paid $50, and their names were entered into a lottery drawing for a $1,000 prize. Participating couples were immediately mailed a package containing $10 in cash, together with two consent forms and background questionnaires to be completed separately by each member of the couple. The background questionnaires assessed demographics, interparental conflict history, relationship quality, and the Big Five personality dimensions. Background questionnaires were completed 1 to 4 weeks before the diary period began.

Approximately 2 weeks prior to the start of the diary period, couples were mailed a second package, containing 4 weeks' worth of daily diary questionnaires, and 4 return envelopes for each partner. Each week's daily diaries consisted of seven identical, structured questionnaires to be completed each day for a total of 28 days. Participants were instructed to complete both

the background questionnaire and the daily diaries separately from their partners and to refrain from discussing their responses with their partners. In addition, participants were instructed to return each week's set of diaries at the end of each week.

Ninety-three couples returned both background questionnaires, resulting in a total of 186 participants (91% of the original sample). Of those participants, 166 returned at least 1 week of daily diaries (81% of the original sample). Sixty-three percent of participants completed all 28 diary days.[1] For the purposes of the study reported here, participants were included in the final sample if they had provided information about both of their parents' use of psychological aggression during conflict and if they completed the daily measures of interest for at least 7 consecutive days. Days on which participants did not complete the diary were treated as missing values.

Gender differences and gender roles in relationships are of primary interest in the analyses presented here. Our sample included only 2 homosexual couples, too few to examine whether processes differ by sexual orientation. Given that we could not assume similar processes for these couples, we restricted the final sample to heterosexual couples only.

The final sample consisted of 146 participants (73 couples), who completed diaries on an average of 22.5 days. Fifty-two percent of participants were students. Fifty-seven percent of couples were married, and the average length of cohabitation among all couples was 3.9 years ($SD = 4.1$). The average age of participants was 29.4 years ($SD = 6.4$). Sixty-eight percent of participants were Caucasian, 6% were Asian or Asian American, 13% were African American or of African descent, 6% were Latino, and 7% were Native American.

MEASURES

Background Questionnaire

Interparental Psychological Aggression

A modified version of the Revised Conflict Tactics Scale (CTS2; Straus, Hamby, McCoy, & Sugarman, 1996) was administered to assess the types of conflict resolution strategies participants witnessed during childhood. Although any retrospective, self-report measure may involve memory biases, the CTS is a widely used, well-validated measure of conflict frequency and intensity (Straus, 1990), and the recent revision has improved its ability to assess psychological aggression (Straus et al., 1996). The CTS was developed to assess conflict within the respondents' relationship. However, its authors

1. The most frequent reason stated for withdrawing from the study was lack of time.

provide an adapted scale[2] for use as a retrospective measure of interparental conflict (Straus et al., 1996), and numerous other researchers have used the CTS effectively in this manner (e.g., Duggan et al., 2001; O'Brien et al., 1995; O'Brien & Chin, 1998).

The Psychological Aggression, Physical Aggression and Negotiation scales of the CTS2 (Straus et al., 1996) were administered following the guidelines suggested by Straus et al. (1996) for obtaining reports from offspring about interparental conflict. The Psychological Aggression scale consists of seven items that assess the extent to which the respondent was exposed to verbal and non-verbal/symbolic acts of aggression between parents. Consistent with prior research (Kennedy, 1999), two items ("delivered an ultimatum" and "blamed the other person") were added to the Psychological Aggression scale. These additional items were administered at the end of the CTS2 to preserve the consistency of the original scale.

Participants rated the frequency with which they witnessed each of their parents engaging in each of the listed behaviors during conflict with the other parent. Individuals who were not raised by both biological parents were instructed to consider their primary caregiver and her/his partner when completing the questionnaire. Participants whose parents were divorced or separated during their childhood were asked to indicate the percentage of time that they lived with each parent. Each item was rated 0 (*never*), 1 (*once ever*), 2 (*twice ever*), 3 (*3–5 times*), 4 (*6–10 times*), 5 (*11–20 times*), or 6 (*more than 20 times*). Scores were weighted and computed according to the guidelines outlined by Straus et al. (1996),[3] so that each parent's psychological aggression score reflects the approximate number of instances of psychological aggression that the respondent recalled witnessing as a child. Alpha coefficients for psychological aggression scales for mother and father were .85 and .83, respectively.

Seventy-four percent of participants in the final sample reported that their parents were still married. Participants reported an average of 44.0 instances of witnessing their mothers' psychological aggression

2. When the CTS is administered to offspring to assess interparental conflict, the language is altered to reflect the third-person observer. In addition, one item "accused [the other] of being a lousy lover" is omitted from the Psychological Aggression scale.
3. Ratings of 0, 1, and 2 are not weighted. Ratings of 3 and above are assigned the value at the midpoint of the range they represent (i.e., 3 is converted to 4, 4 to 8, 5 to 15, and 6 to 25).

(*SD* = 43.4), with scores ranging from 0 to 190. The average level of exposure to fathers' psychological aggression was 39.9 (*SD* = 40.9), with scores ranging from 0 to 154. The level of exposure to mothers' and fathers' aggression did not differ significantly. The correlation between mothers' and fathers' aggression was .65 ($p < .001$). Males and females did not differ significantly with respect to parents' marital status, exposure to mothers' aggression, or exposure to fathers' aggression.

Parent-Child Aggression

The construct of interest to this study is the impact of parental examples of marital conflict on marital conflict in the next generation. However, parents who engage in psychological aggression with each other may also direct such aggression towards their children. Participants were administered the CTS2 Parent-Child form (Straus et al., 1996) to assess the level of aggression they experienced from each of their parents. The mean levels of mother-child and father-child aggression were 30.48 (*SE* = 29.13) and 22.26 (*SD* = 27.27), respectively. The correlation between mothers' psychological aggression during interparental conflict and during parent-child conflict was .39 ($p < .001$). The correlation between fathers' psychological aggression during in interparental conflict and during parent-child conflict was .49 ($p < .001$).

Levels of parent-child aggression were included in follow-up analyses as control variables to clarify that the processes we investigated were specific to witnessing interparental psychological aggression. None of the significant effects of witnessing interparental aggression was diminished when the level of parent-child aggression was taken into account.

Big Five Personality Traits

We asked both members of couples to complete the forty-item Mini-Marker scales proposed by Saucier (1994). Each trait is measured by averaging eight self-ratings on adjectives with response alternatives ranging from 0 to 8. The means (standard deviations) of the five scales were as follows: Extraversion 37.9 (11.4), Agreeableness 49.9 (8.2), Conscientiousness 42.7 (11.5), Emotional Stability 36.5 (11.1), Openness 47.1 (9.9). The alpha coefficients of the five scales across all participants were Extraversion .85, Agreeableness .81, Conscientiousness .86, Emotional Stability .81, and Openness .86.

Daily Diary

Anger

The daily diary included 16 items from the Profile of Mood States (POMS; Lorr & McNair, 1971), four each from the depression, anger, anxiety, and vigor scales. Participants were asked to complete the mood measure in the morning and in the evening on each day, rating the extent to which they were feeling or experiencing each emotion listed at that point in time. Participants responded by circling the appropriate number on a scale ranging from *Not at all* (1) to *Extremely* (5). Midpoints (1.5, 2.5, etc.) were included in the scale to increase the potential for variability across days. Daily anger scores were obtained by averaging the relevant items (annoyed, resentful, angry, and peeved). The scale was then converted to a range of 0–100 to facilitate interpretation of the results (i.e., changes in anger can be conceptualized in percentage scores). The mean levels of morning and evening anger were 4.84 (*SD* = 11.27) and 6.18 (*SD* = 13.33), respectively.

Partner Conflict

Each day, in the evening only, participants were asked to indicate whether they had experienced a conflict or disagreement with their partner that day (the occurrence of conflict was coded "1" and the absence of conflict was coded "0"). Participants reported an average of 3.29 (*SD* = 2.76) conflicts during the 28-day diary period. We combined information from both participants to create an index of agreed conflict days. Both partners agreed that conflict occurred on an average of 2.07 days (*SD* = 2.26) out of the 28 days surveyed. Across couples, agreed conflict ranged from 0 to 10 days. Across the diary period, 19 couples reported no conflicts day, 19 reported one conflict, and 45 reported two or more conflicts.

Data Analysis

Analysis of Between-Person Variables

We used Generalized Estimating Equation methods (Diggle, Liang & Zeger, 1994) to estimate regression models involving partners within couple. This estimation method is implemented in the GENMOD procedure in SAS (SAS Institute, 1997), and it allows within-couple

correlation in residuals to be taken into account in estimating and testing of effects. Both multiple regression and logistic regression models can be estimated in this way.

Analysis of Daily Diary Reports

We used multilevel or hierarchical linear models to account for daily variation in conflict and anger within partners in each couple and to express this variation as a function of childhood exposure to interparental aggression. We used the MIXED procedure in SAS (SAS Institute, 1997) to estimate the multilevel effects. In addition, we allowed for (a) first-order serial correlation in the daily residuals within each partner in a couple (i.e., between yesterday's and today's residuals) and (b) same-day correlation in the residuals between each partner (i.e., between the male's and female's residuals) in a couple.

RESULTS

Interparental Psychological Aggression and Personality Traits

The first analysis places reports of interparental psychological aggression in the context of what respondents told us about their profiles on the Big Five personality dimensions. Table 1 shows multiple regression analyses of paternal and maternal psychological aggression in relation to respondents' reports of Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness.[4] The patterns of coefficients are similar across the two parental aggression outcomes, except for the signs for respondent's gender and for extraversion, but neither of these effects is significant in either analysis. Emotional stability was significantly and inversely related to reports of both forms of parental aggression. Conscientiousness was positively related to both measures, although the effect was marginally significant for maternal aggression.

4. All five personality variables were centered around their means. Sex was coded 0 for females and 1 for males. Although the generalized estimating equation methods allow the residuals within couple to be correlated, PROC GENMOD estimated these correlations to be very small, −.07 for paternal aggression and .05 for maternal aggression.

Table 1
Regression of Recalled Parental Psychological Aggression on Gender and Big Five Personality Traits Based on 146 Respondents in 73 Couples

	Maternal psychological aggression	Paternal psychological aggression
Outcome:	*Estimate (SE)*	*Estimate (SE)*
Intercept	40.47 (4.75)**	39.10 (5.19)**
Gender	7.41 (8.15)	0.10 (8.06)
Extraversion	−0.05 (0.30)	0.25 (0.25)
Agreeableness	0.05 (0.52)	−0.59 (0.49)
Conscientiousness	0.93 (0.31)**	0.46 (0.26)$^{+}$
Emotional stability	−1.37 (0.32)**	−0.81 (0.34)**
Openness	0.18 (0.35)	0.32 (0.33)

** $p < .01$, two-tailed; all tests reported in this paper are two-tailed.
$^{+}$ $p < .10$.
Coefficients estimated using generalized estimating equations that take into account possible within-couple correlation in residuals. Personality measures were centered at their means, and gender was coded 0 for females and 1 for males. This coding makes the intercept interpretable as the average female report of parental aggression.

Marital Conflict Events, Interparental Psychological Aggression and Personality Traits

We expected that childhood exposure to interparental psychological aggression would predict exposure to relationship conflict during the 28-day diary period. Specifically, the number of days on which both participants reported engaging in conflict with their partners was expected to increase as a function of increases in exposure to interparental psychological aggression of each partner.

The data did not support our expectations. Table 2 shows simple correlations of parental aggression reports by males and females with the number of conflict days that both reported. For neither male nor female reports of parental aggression were there strong or moderate correlations with number of agreed-conflict days.[5] Our sample size,

5. These simple correlation results are consistent with alternative analyses we considered. We used random regression models to determine if the probability of conflict on a given day was affected by parental aggression, but there was no such evidence. We also checked to see if the relation was suppressed by either personality or gender, but we again found no association. Nor were associations found when we explored conflict days as reported by individual partners instead of agreement-based conflict days. Details of these analyses are available from the authors.

Table 2
Correlations Between Number of Conflict Days (Jointly Reported) and Male and Female Reports of Parental Psychological Aggression and Big Five Personality Traits ($N = 73$)

	Conflict days with female reports	Conflict days with male reports
Maternal psychological aggression	0.11	0.04
Paternal psychological aggression	0.13	−0.07
Extraversion	0.03	−0.13
Agreeableness	0.08	0.00
Conscientiousness	−0.08	−0.10
Emotional stability	−0.10	−0.03
Openness	0.16	0.20^{+}

$^{+}$ $p < .10$.

however, limits our ability to rule out possible small-to-medium associations. The 95% confidence interval around the largest correlation, .13 for female reports of paternal psychological aggression and conflict, ranged from −.10 to .35, whereas the confidence interval around the smallest, −.07 for male reports of paternal aggression, ranged from −.30 to .16.

Table 2 also shows that number of conflict days is also not correlated with the Big Five personality measures for males or females. Only openness approached significance for male respondents, with more open (creative, imaginative, deep, philosophical) respondents experiencing more conflict days. The data do not allow us to rule out small-to-moderate associations. With our sample size, the confidence interval for the conflict-agreeableness correlation ranged from −.18 to .28 for females and from −.23 to .23 for males. The confidence interval for the conflict-emotional stability correlation ranged from −.30 to .15 for females and from −.26 to .20 for males.

Interparental Psychological Aggression and Anger Reactivity to Conflicts

The next set of analyses was designed to test the hypothesis that interparental psychological aggression witnessed during childhood predicts reactivity to conflict in intimate relationships in adulthood.

Specifically, greater exposure to psychological aggression in childhood was expected to predict greater anger at the end of days when respondents reported conflict with their partners, after statistically adjusting for their level of anger at the beginning of the day.

A multilevel model was used to analyze the effect of interparental psychological aggression on reactivity to marital conflict. The first level of this model specified that each male and female person in the population of couples could have a unique association between relationship conflict on day k and anger in the evening, after statistically adjusting for anger in the morning (before the occurrence of the conflict).[6] The basic specification of the first level of our model is the one used by Bolger and Zuckerman (1995). However, given that our sample is of couples rather than individuals, we modified the specification to incorporate the fact that individuals are not sampled independently (following work by Barnett, Marshall, Raudenbush, & Brennan, 1993). The model distinguishes between the paired male and female members of each couple. This within-subject, within-couple, level of the model can be written as in Equation 1. In this equation, morning ratings of anger were centered at the mean level across all persons and days.

$$\begin{aligned} A_{\mathrm{ijk:PM}} = {} & (I_{\mathrm{Hij}})^{*}(a_{0\mathrm{Hj}} + a_{1\mathrm{Hj}}A_{\mathrm{Hjk:AM}} + a_{2\mathrm{Hj}}C_{\mathrm{jk}} + e_{\mathrm{Hjk}}) \\ & +(I_{\mathrm{Wij}})^{*}(\mathrm{a}_{0\mathrm{Wj}} + a_{1\mathrm{Wj}}A_{\mathrm{Wjk:AM}} + a_{2\mathrm{Wj}}C_{\mathrm{jk}} + e_{\mathrm{Wjk}}) \end{aligned} \quad (1)$$

Equation 1 distinguishes between the males and females using two dichotomous indicators, I_{Hij} and I_{Wij}, which indicate whether the individual is the male or female in the couple. When the individual is the male, $I_{\mathrm{Hij}} = 1$ and $I_{\mathrm{Wij}} = 0$, and the first part of the model is selected. When the individual is the female, $I_{\mathrm{Hij}} = 0$ and $I_{\mathrm{Wij}} = 1$, and the second part of the model is selected. For each part, the anger reported in the evening by person i in couple j on day k, $A_{\mathrm{ijk:PM}}$, is a

6. Although daily diary data analysis often explores lagged effects over days (e.g., Bolger & Zuckerman, 1995; Thompson & Bolger, 1999), we believe that same-day effects provide a more sensitive measure of conflict reactivity. With same-day analysis, reactivity is measured as the regressed change in anger from morning to evening on conflict days. With lagged analysis, much of the reactivity to conflict would be lost because the participant reporting conflict and anger on day t would have to become angrier over the next 24 hours, reporting higher levels of anger on day $t + 1$.

function of an intercept ($a_{0\mathrm{Hj}}$ for the male or $a_{0\mathrm{Wj}}$ for the female), which represents the evening anger for each partner on the average day when he or she reported that no conflict occurred and that his/her anger in the morning was at an average level. Equation 1 also includes an effect of each partner's reported anger on the morning of day k, $a_{1\mathrm{Hjk}}A_{\mathrm{Hjk:am}}$ and $a_{1\mathrm{Wjk}}A_{\mathrm{Wjk:am}}$; an effect of jointly reported conflict with the partner, $a_{2\mathrm{Hj}}C_{\mathrm{jk}}$ and $a_{2\mathrm{Wj}}C_{\mathrm{jk}}$ (we refer to a_2 as reactivity to conflict); and random components, $e_{\mathrm{Hjk\ and}}\ e_{\mathrm{Wjk}}$. The random components were assumed to have zero mean but were allowed to have different variances for males and females. As noted earlier, errors on adjacent days were allowed to correlate, as were errors on the same day between members of a couple.

The second, between-subject level of the model allows for the possibility that the various level 1 effects (a coefficients in equation 1) can vary as functions of interparental psychological aggression, and other individual differences such as the five personality dimensions. Each of the level 1 effects becomes the outcome in a linear model that describes the systematic variation in the effect. For example, the two intercepts, $a_{0\mathrm{Hj}}$ for males and $a_{0\mathrm{Wj}}$ for females, might be systematically higher for persons who experienced interparental psychological aggression, and they might be lower for persons who have relatively more emotional stability. These overall individual difference effects are examined in the level-two model as follows (where P and M are exposure to paternal and maternal aggression, respectively, and F represents one of the five personality scores[7]):

$$a_{0\mathrm{Hj}} = b_{00\mathrm{H}} + b_{01\mathrm{H}}P_{\mathrm{Hj}} + b_{02\mathrm{H}}M_{\mathrm{Hj}} + b_{03\mathrm{H}}F_{\mathrm{Hj}} + s_{0\mathrm{Hj}} \quad (2a)$$

$$a_{0\mathrm{Wj}} = b_{00\mathrm{W}} + b_{01\mathrm{W}}P_{\mathrm{Wj}} + b_{02\mathrm{W}}M_{\mathrm{Wj}} + b_{03\mathrm{W}}F_{\mathrm{Wj}} + s_{0\mathrm{Wj}} \quad (2b)$$

The models of particular interest in the second level are those of the reactivity to conflict in the relationship. For each partner in couple j,

7. The models of the intercepts used in the analysis included all five personality scores, but only one is shown in this equation for the sake of simplicity of presentation in the text. Thus, for a_0 the model specified an intercept, maternal and paternal psychological aggression, gender of respondent, and the five personality measures, as well as a random component. Results are included in Table 3.

the reactivity coefficient for males, $a_{2\mathrm{Hj}}$, and females, $a_{2\mathrm{Wj}}$, is allowed to vary as a function of exposure to interparental psychological aggression, as follows:

$$a_{2\mathrm{Hj}} = b_{20\mathrm{H}} + b_{21\mathrm{H}}P_{\mathrm{Hj}} + b_{22\mathrm{H}}M_{\mathrm{Hj}} + s_{2\mathrm{Hj}} \quad (3a)$$

$$a_{2\mathrm{Wj}} = b_{20\mathrm{W}} + b_{21\mathrm{W}}P_{\mathrm{Wj}} + b_{22\mathrm{W}}M_{\mathrm{Wj}} + s_{2\mathrm{Wj}} \quad (3b)$$

As before, the level of exposure to each parent's psychological aggression was centered at the mean across all participants. Equations 3a and 3b indicate that each partner's reactivity to conflict (the slope representing PM anger differences between conflict and nonconflict days) is a function of an intercept, $b_{20\mathrm{H}}$ or $b_{20\mathrm{W}}$, representing the reactivity of respondents who reported an average level of exposure to interparental psychological aggression; an effect of exposure to paternal psychological aggression, $b_{21\mathrm{H}}P_{\mathrm{Hj}}$ or $b_{21\mathrm{W}}P_{\mathrm{Wj}}$; an effect of exposure to maternal aggression, $b_{22\mathrm{W}}M_{\mathrm{Wj}}$ or $b_{22\mathrm{W}}M_{\mathrm{Wj}}$; and a random component, $s_{2\mathrm{Hj}}$ or $s_{2\mathrm{Wj}}$.[8] Thus, the significance test of slopes, b_{21} and b_{22} provides the test of our hypothesis that exposure to psychological aggression between parents predicts increased reactivity to relationship conflict. Both first and second level models were simultaneously estimated in a single MIXED model in SAS that permits a significance test of potential gender differences. Results are presented in Table 3.

On days when no conflict was reported and when morning anger was average, the average person's level of anger in the evening (scaled from 1–100) was small for both females ($b = 4.986$, $SE = .436$, $p < .01$) and males ($b = 5.646$, $SE = .573$, $p < .01$). However, on days when a conflict was jointly reported, respondents' anger increased by 9.342 units ($SE = 1.451$, $p < .0001$).[9] Angry mornings made angry evenings more likely: Evening anger was increased by .294 units ($SE = .041$, $p < .01$) for each unit increase in the morning anger.

8. We also explored whether two personality variables that have been shown to be related to reactivity to conflict, emotional stability and agreeableness, were related to a_{2H} and $a_{2\mathrm{W}}$. Neither was significant, and the inclusion of these terms did not change the pattern of results reported in the text. Therefore, we present only the simpler model.
9. The effect of conflict on PM Anger was so similar for males and females that we chose to constrain the estimate to be the same in Table 3.

Table 3

Regression of PM Anger on AM Anger, Conflict, Parental Psychological Aggression, and Big Five Personality Traits for Females and Males Within Couples. Sex-Specific Effects for Intercept, AM Anger, and Conflict Are Allowed to Vary Across Participants. Residuals Are Allowed to Covary (i) Between Persons Within Couples and (ii) Between Adjacent Days Within Persons

Fixed Effects (averages)	*Female estimate (SE)*	*Male estimate (SE)*	*Gender*[a] *contrast*
Intercept	4.986 (0.436)**	5.646 (0.573)**	0.660
AM anger	0.294 (0.041)**	0.294 (0.041)**	[b]
Conflict	9.342 (1.451)**	9.342 (1.451)**	[b]
Maternal psychological aggression (MPA)	0.030 (0.012)*	−0.009 (0.015)	−0.039*
Paternal psychological aggression (PPA)	−0.025 (0.011)*	0.016 (0.017)	0.041*
Conflict by MPA	0.006 (0.039)	−0.128 (0.035)**	−0.134*
Conflict by PPA	−0.011 (0.041)	0.186 (0.038)**	0.197**
Extraversion	0.023 (0.027)	0.023 (0.027)	[b]
Agreeableness	−0.036 (0.045)	−0.036 (0.045)	[b]
Conscientiousness	−0.021 (0.029)	−0.021 (0.029)	[b]
Emotional Stability	−0.044 (0.030)	−0.044 (0.030)	[b]
Openness	−0.038 (0.033)	−0.038 (0.033)	[b]
Random effects (variances)	*Female Estimate (SE)*	*Male Estimate (SE)*	
Intercept	5.826 (2.012)**	14.717 (3.958)**	
AM Anger	0.067 (0.017)**	0.067 (0.017)**	[b]
Conflict	79.652 (23.912)**	79.652 (23.912)**	[b]
Residual	114.20 (4.115)**	125.83 (4.578)**	
First-order autocorrelation between days within persons	0.038 (0.020)*	0.038 (0.020)*	[b]
Covariance of residuals between persons within couples	8.695 (3.088)*		

[a] Contrast of male–female estimates. Values are *t* statistics with 65 degrees of freedom.

[b] Female and male estimates constrained to be equal.

* $p < .05$

** $p < .01$

Anger in the evening was affected by both paternal and maternal psychological aggression, but in ways that were moderated by conflict and gender. On days when there was no jointly reported conflict, the level of evening anger tended to covary with reported paternal and maternal psychological aggression for women but not for men. The pattern of covariation for women is linked to the parent's gender. On nonconflict days, female respondents whose mothers displayed more psychological aggression were more likely to be angry in the evening (b = .030, *SE* = .012, $p < .05$), but female respondents whose fathers displayed more psychological aggression were *less* angry in the evening (b = −.025, *SE* = .011, $p < .10$). Interestingly, the reverse pattern was observed for male respondents, although it is not significant on non-conflict days. The pattern emerges clearly on conflict days for males.[10]

Males, but not females, showed the predicted reactivity to jointly reported conflict as a function of parental psychological aggression. For each unit increase in paternal psychological aggression, evening anger was increased by 0.186 (*SE* = .038, $p < .01$) on conflict days. Contrary to our initial predictions, increase in instances of maternal aggression *reduced* the reactivity to conflict relative to the average reactivity (b = −.128, *SE* = .035, $p < .01$). For males, these moderating effects accentuated the gender-specific associations of parental psychological aggression that were suggested on non-conflict days. For females, there was no evidence of moderation of conflict by either paternal aggression (b = −.013, *SE* = .041, *ns*) or maternal aggression (b = .002, *SE* = .039, *ns*).[11]

Figure 2 shows model predicted values of evening anger as a function of conflict and parental psychological aggression. For males and females with average levels of maternal and paternal aggression conflicts are associated with approximately a 9-point increase in anger. For females, paternal and maternal psychological aggression does not moderate this reactivity effect. However, females who reported that

10. Our analyses focused on the unique effects of mother-to-father and father-to-mother conflict. Given that these measures were positively correlated, the reader may wonder about the effect of what is common to them rather than what is unique. Consistent with our finding that they have approximately equal and opposite effects, the average of the two did not explain variance in daily anger.

11. This pattern of results was unchanged when we adjusted for participants' reports of witnessing interparental physical aggression. Reports of such aggression were few: The means for mother-to-father and father-to-mother physical aggression were 3.2 and 4.3, respectively.

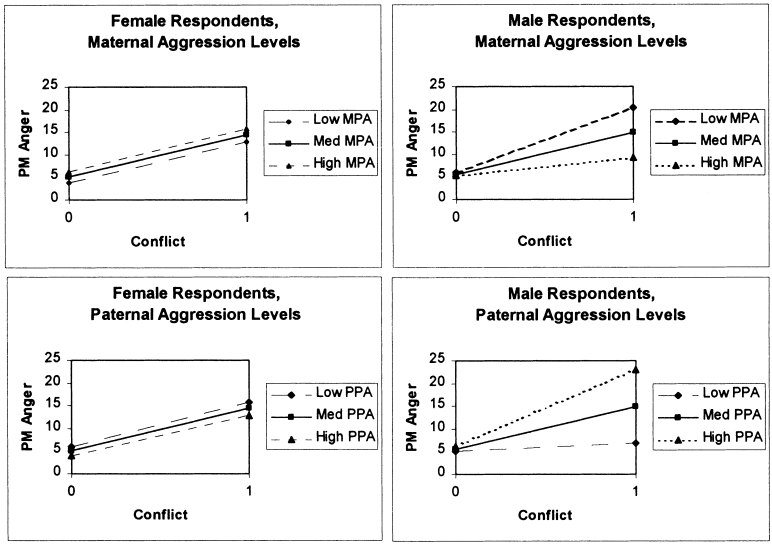

Figure 2

Interaction plots of Paternal and Maternal Psychological Aggression by jointly reported conflict for female and male respondents. Outcome is anger reported in evening. Levels of psychological aggression are 1 standard deviation above mean (High Psychological Aggression), mean (Medium Psychological Aggression) and 1 standard deviation below mean (Low Psychological Aggression). Values are adjusted to mean level of morning anger, personality traits, and alternate parental aggression.

their mothers used psychological aggression are on average somewhat more angry in the evening of both conflict and nonconflict days. Females who report that their fathers used psychological aggression are on average somewhat less angry in the evening for these days.

In contrast to the plots for females, for male respondents the effect of parental psychological aggression on reactivity to parental aggression is notable. Males who report high levels of paternal psychological aggression show an increase of 16 points on conflict days rather than the average of 9 points that were reported by persons with average levels of parental aggression. On the other hand, males who report low levels of paternal aggression only show an increase of 2 points in evening anger on conflict days. Contrary to our expectations, the males who report high levels of maternal psychological aggression are less reactive to conflict than males who report average or low levels of maternal aggression.

Table 3 also shows some information about the data that is unique to the multilevel regression models that we used. Random effects for the intercepts, AM anger, and conflict are all significant, which indicate that there is person-to-person variation above and below the predicted effects we have just summarized. For example, the random effect variance of 79.7 (SD = 8.9) for conflict suggest that some persons are considerably less reactive to conflict than their predicted value given their interparental conflict history, whereas others are considerably more reactive. Table 3 also shows the estimates of the dependency of the residual terms between adjacent days within persons and between persons within couples. Estimates of both types of dependency are small, but are significantly different from zero. The covariance of residuals between partners within couple (for a given day) is 8.695, and this corresponds to a correlation of 0.073. The correlation of residuals from one day to the next within a person is 0.038.

Finally, Table 3 shows that Big Five personality traits do not predict daily anger over and above the influence of interparental aggression. Most of the personality coefficients have standard errors that are larger than the coefficients themselves. It is important to note that in other analyses that do not control for interparental aggression, agreeableness and emotional stability do predict anger (as would be expected from prior research). The coefficients from that simpler model for agreeableness and emotional stability are −.128 (SE = .061, $p < .05$) and −.100 (SE = .046, $p < .05$).

DISCUSSION

We proposed that witnessing interparental psychological aggression in childhood would influence daily conflict processes in adult intimate relationships. Following Bolger and Schilling (1991) and Bolger and Zuckerman (1995), three mechanisms were proposed: Interparental psychological aggression could increase (a) exposure to daily conflicts in the intimate relationship, (b) daily anger in reaction to those conflicts, or (c) daily anger independently of those conflicts. We expected effects to emerge over and above those of the Big Five personality dimensions. The specific findings were complex.

First, for both males and females we found evidence of interparental aggression effects on daily anger independent of the effects of relationship conflict. The pattern was intriguing: The same-sex

parent's psychological aggression predicted greater daily anger, whereas the opposite-sex parent's aggression predicted less daily anger. Second, we found reactivity effects for males only, but again the pattern involved accentuation as a function of the same-sex parent's aggression and diminution as a function of the opposite-sex parent's aggression. Third, we found no evidence of exposure effects: for both males and females, witnessing interparental psychological aggression had no implications for the number of conflict days they reported. Finally, as expected, these patterns emerged after controlling for the Big Five. However, the Big Five failed to independently predict relationship functioning after controlling for interparental aggression. We discuss each of these findings in turn.

Effects on Anger Reactivity for Males

The specific pattern of effects on males' reactivity to conflict suggests at least two different processes. First, the anger-increasing effect of fathers' aggression is suggestive of a gender-role identification process. Fathers who become psychologically aggressive during marital conflict are displaying poor models of emotional and behavioral control to their sons. As a result, these boys may internalize the notion that men react to marital conflict with anger and aggression. Sons of aggressive fathers may then be less willing or able to modulate their anger or they may be unaware of alternatives to feeling angry.

The anger-decreasing effect of exposure to mothers' aggression may indicate a desensitization process. Boys who witness their mothers behaving aggressively in the marital relationship may come to assume that aggression in significant others is normal and not indicative of the need to respond angrily. By the same token, boys with mothers who did not behave aggressively may have their expectancies violated during conflicts and may react more angrily.

Alternately, exposure to mothers' aggression may be associated with a more internalized reaction process, such as depression or anxiety. Dadds and colleagues (Dadds, Atkinson, Turner, Blums, & Lendich, 1999) found that boys whose mothers were classified as "attacking" during marital conflict were more prone to internalizing problems and reported avoidant resolution styles during sibling conflict. Additional research to explore internalizing responses to conflict and to consider whether the response patterns identified by Dadds et al. (1999) are sustained into adulthood is warranted.

The presence of reactivity effects unique to males only reflects a more general phenomenon that boys are more influenced by marital discord than girls, especially in terms of developing externalizing behavior problems (e.g., Emery & O'Leary, 1984; Jouriles et al., 1988; Rutter & Giller, 1984). A clear explanation of this phenomenon has yet to be substantiated empirically. Further, this does not address the disparity between the effects of each parent's aggression found in our data.

Effects on Daily Anger Independent of Relationship Conflict

The finding that exposure to interparental psychological aggression affects daily anger, even adjusting for daily relationship conflicts, could, nonetheless, reflect a process similar to that found for the reactivity effects. The results are consistent with the gender-role identification hypothesis presented above, and they extend to females as well as males. Thus, parents who become psychologically aggressive during marital conflict are modeling externalization of emotions that may be encoded in a gender-specific way. Children may then internalize the notion that parents of their gender experience more anger. In addition, psychologically aggressive parents may be angrier in general themselves, and our findings may reflect a gender-specific effect of same-sex parents' overall level of anger. The decrease in anger associated with exposure to the opposite-sex parent's aggression could reflect a desensitization effect or an internalizing process as described above.

Lack of Exposure Effects

As noted in the Results section, although we can conclude that witnessing interpersonal aggression does not have a strong effect on exposure to relationship conflicts, we cannot rule out the possibility that it has a small or moderate one. If such effects do exist they are subtler than the exposure effects found by Bolger & Zuckerman (1995) for the relation between emotional stability (neuroticism) and daily conflicts in general.

Role of the Big Five Personality Dimensions

As expected, effects of parental psychological aggression emerged independently of the Big Five. Interestingly, two especially relevant

Big Five dimensions, agreeableness and emotional stability, did not predict daily anger independently of interparental conflict. In analyses not shown, these two variables did not predict reactivity to conflict, and their inclusion did not change the effects of parental aggression on reactivity. Our primary goal in including these personality variables in the analysis was to be assured that any effects of parental psychological aggression could not be attributable to conventional measure of adult personality structure, and the results suggest that that assurance is warranted.

Nonetheless, we were surprised that the five personality dimensions were not more strongly related to conflict, daily anger, and anger in reaction to conflict. We wondered if the Saucier's short measures of the Big Five might be responsible, but we have evidence that their validities are respectable. First, in analyses not shown, we were able to establish that the Saucier measures of emotional stability and extroversion were very highly correlated in our data with short forms of neuroticism and extroversion from the Eyesenck Personality Inventory (Eyesenck & Eyesenck, 1964). Second, we noted that the expected effects of agreeableness and emotional stability on daily anger do emerge when the interparental conflict measures were removed from the model. Finally, we note that the analyses of the overlap of the personality dimensions and reports of interparental aggression yielded results that are consistent with expectations. For reports of both maternal and paternal psychological aggression, emotional stability had a strong inverse relation. Respondents who viewed themselves as conscientious were also more likely to report more incidents of parental psychological aggression.

With regard to the association of the personality measures with reports of conflict, our data are inconsistent with large to medium associations, but the sample size is too small to rule out small-to-nearly medium associations. Smaller effects are to be expected when the measures of conflict require consensual reports across both participants in the relationship. It is likely that the conflicts in our analyses are somewhat more severe and depend less on unique individual perspectives, vulnerabilities and interpretations.

Finally, we note that research relating personality to conflict in adolescents and young adults does not necessarily generalize to consensually reported conflicts in committed intimate relationships. For example, Graziano and his colleagues (Jensen-Campbell & Graziano, 2001; Graziano, Jensen-Campbell & Hair, 1996) have

shown that agreeableness is an important moderator of conflict responses and tactics among adolescents and college students, and they have argued that agreeableness pertains to participants' motives for maintaining positive relationships with others. These processes may be less important among persons in committed cohabitating relationships. In such relationships, partners often have to manage incompatible demands and activities, and therefore some daily conflicts may be unavoidable, even among those high in agreeableness.

LIMITATIONS AND CONCLUSIONS

The complexity of our results suggests that exposure to interparental psychological aggression influences the ways in which individuals perceive conflict and experience anger. This is consistent with the concept of a conflict schema that forms through witnessing patterns of interparental conflict and is activated and applied in other conflict situations (e.g., Duggan et al., 2001; O'Brien et al., 1995). It also implies that the relational schema that develops in long-term intimate relationships (Baldwin, 1992) may contain elements that have carried over from partners' experiences with models of intimate relationships and with interparental conflict. Further study is necessary to explore whether parents' general level of anger or other personality characteristics are encoded in a gender-specific manner and applied broadly or in relationship-specific contexts. Future studies of relational schemas would also benefit from considering how aspects of representations of family-of-origin relationships impact the processing of information with new people, thereby influencing the formation of new relational schemas in adult interactions.

We focused solely on anger in exploring the effects of interparental psychological aggression on reactivity to conflict. We chose anger because we believe that residual anger after marital conflict carries the potential for resentment among partners, which can have enduring effects on relationship quality. Further, anger implies the potential for the conflict to escalate, providing a link to studies of physical aggression in couples.

Prior daily diary research has indicated conflict to be one of the most consistently distressing of daily events (e.g., Bolger, DeLongis, Kessler, & Schilling, 1989). The perceptual biases that we have discussed here may very well have an impact on distress reactions to conflict. Future studies that explore a broader range of emotional

reactions and explore the content of conflict will be an important extension of this work.

A limitation of this study is the self-selected nature of the sample. Participation in daily diary research with couples is a time-consuming endeavor that requires the simultaneous and extended compliance by both partners. We cannot, therefore assume that the resulting diary samples of couples are representative. Further, distressed couples might be less likely to volunteer to have their relationships observed.

In spite of these potential limitations, we believe the research offers several important contributions to the study of relationship patterns across generations. First, although we did not assess the presence or activation of conflict schemas, our findings suggest that mental representations of conflict formed through experience of interparental conflict have enduring effects. Second, our findings indicate that the specific effects that childhood exposure to interparental psychological aggression have on adult intimate relationships are based on the sex of the aggressor and the child. Prior research has frequently focused on the impact of one parent's aggression without comparison with the parent of the opposite sex (e.g., Dadds et al., 1999) or on the combined effect of both parents' aggression (e.g., Duggan et al., 2001).

We have also introduced two innovations to the methodology of diary research on couples. We have collected diary information twice daily, enabling us to examine change within each day. Finally, we have employed statistical methods that adjust for dependencies in data due to temporal and within couple processes.

In conclusion, we have found that witnessing destructive interparental conflict in childhood predicts reactivity to relationship conflict in males and, in addition, the anger both males and females in close relationships feel on a daily basis. These effects, therefore, have implications for the ability of children exposed to destructive interparental conflict to form healthy adult relationships in which constructive conflict resolution is possible.

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