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Trauma Exposure and Aggression Toward Partners and Children:
Contextual Influences of Fear and Anger

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TRAUMA EXPOSURE AND AGGRESSION 2

Abstract

Trauma exposure is a consistent correlate of intimate partner and parent-to-child aggression (IPA and PCA) perpetration, and difficulties with emotions (particularly fear and anger) are hypothesized to underlie these relations. However, the absence of knowledge of the immediate, contextual influence of emotions on aggression renders existing conclusions tenuous. This study illustrates a new method for studying contextual influences on aggressive behavior. Quarterly for one year, 94 men and 109 women with children age 2.5 years at study commencement were interviewed to measure the sequence of behaviors during aggressive incidents as well as the intensity of their emotions immediately prior to initiation of aggression. Within aggressive incidents, the number of acts of men’s PCA was predicted by men’s greater fear, anger, and trauma exposure, and the positive association between men’s trauma exposure and PCA perpetration was especially strong under conditions of high fear and anger. In contrast, men’s IPA was predicted by greater fear and anger, but not trauma exposure. Men with low trauma exposure engaged in more IPA under conditions of high fear; among men with high trauma exposure, fear inhibited their IPA persistence. Trauma exposure and fear interacted in the same manner to predict women’s IPA, but many other findings among men did not generalize to women’s aggression. This study illuminates the utility of simultaneously examining aggression across genders and family dyads, and serves as a foundation for refining theories of trauma and family aggression to account for emotion as a factor that can both motivate and inhibit aggression.

Keywords: partner violence, child abuse, psychological aggression, emotion, aggressive incidents
Aggression within families is a common phenomenon, particularly among parents of young children. In a community sample of 453 families with children age 3-7 years, 49% of parents engaged in physical intimate partner aggression (IPA) and 87% engaged in physical parent to child aggression (PCA; Slep & O’Leary, 2005). Rates of psychological IPA and PCA are even higher, with rates of psychological IPA estimated at 97% of parents (O’Leary, Slep, & O’Leary, 2007) and psychological PCA estimated at 90-98% of parents (Straus & Field, 2003). Similar rates of IPA and PCA have been observed across community samples of young families (Kim, Lee, Taylor, & Guterman, 2014; Laughmrichsen-Rohling, Selwyn, & Rohling, 2012). Moreover, IPA and PCA frequently co-occur within families, such that nearly 95% of parents who engage in IPA also engage in PCA (Slep & O’Leary, 2005).

A breadth of physical and mental health consequences of experiencing IPA exist, and often occur following exposure to psychological IPA, even in the absence of physical IPA (Lawrence, Oremo-Aguyoyo, Langer, & Brock, 2012). Men’s IPA is particularly concerning as it is most strongly associated with women’s development of mental health problems and physical injury (Tjaden & Thoennes, 2000). At the same time, children’s exposure to IPA is a risk factor for poor emotional, behavioral, social, and cognitive functioning (Kitzmann, Gaylord, Holt, & Kenny, 2003). Although these outcomes are more prevalent and serious with exposure to physical IPA (Kitzmann et al., 2003), exposure to psychological IPA also predicts children’s adverse outcomes above and beyond the effect of physical IPA (Jouriles, Norwood, McDonald, Vincent, & Mahoney, 1996). Similarly, the negative consequences of PCA for children are substantial and occur even with relatively commonplace acts such as spanking (Gershoff, 2002). In fact, exposure to psychological PCA predicts adverse outcomes independent of physical PCA (Miller-Perrin, Perrin, & Koncut, 2009). Importantly, children exposed to IPA and PCA exhibit more severe negative outcomes than children exposed to only one form of family aggression (McDonald, Jouriles, Tart, & Minze, 2009).
Despite high co-occurrence rates and similar theoretical perspectives, IPA and PCA are traditionally studied separately (Slep & O'Leary, 2005). Integration of the two fields can limit empirical redundancy, strengthen theoretical convergence and parsimony, and promote consideration of dyadic context. Therefore, we simultaneously examined the context and correlates of parents' use of IPA and PCA to compare motivations for the use of these two forms of aggression. We focus on whether the globally measured trait of trauma exposure is translated into aggressive behavior specifically in contexts defined by experienced emotions. Additionally, because little meaningful conceptual distinction between psychological and physical aggression exists and, among many families, the two forms of aggression are largely indistinguishable in terms of occurrence, correlates, and consequences (as described above), we view psychological and physical aggression as highly entwined aspects of a single hypothetical construct. Accordingly, we combined measurement of psychological and physical aggression into a single measure.

**Trauma Exposure and Aggression toward Partners and Children**

Across species and contexts, a consistent link between trauma exposure and aggression perpetration exists, including that of IPA and PCA perpetration (Ferris, 2000; Schumacher, Feldman-Koff, Slep, Heyman, 2001; Stith et al., 2009). This may be particularly true for aggression in the family as trauma exposure is more strongly associated with perpetration of family violence than other forms of violence (Dutton & Hart, 1992; Milaniak & Widom, 2015). When focused on physical aggression, the IPA and PCA research fields have long histories of recognizing the importance of perpetrators' trauma exposure. In the study of IPA, this is often described by reference to Holzworth-Muñoz and Stuart’s (1994) typology of violent husbands, which posits that trauma and ensuing conditions (e.g., emotional reactivity, fearful and preoccupied attachment) play a key role in the perpetration of violence by men who are almost exclusively violent toward their partners and children. In the study of PCA,
this is often framed as the “intergenerational transmission of violence” and centered on childhood abuse experiences (Milaniak & Widom, 2015; Widom, 1989).

Despite the compelling nature of this literature, limitations exist. Most notably, the majority of studies regarding the link between trauma and IPA perpetration are based on men (or a subtype of men) while the majority of studies regarding the link between trauma and PCA perpetration are based on women. In studies that include both genders, data for men and women are typically not examined separately. This gap may be especially problematic for the study of IPA because IPA typically occurs among both partners (Laughinrichsen-Rohling et al., 2012) and can be especially traumatizing for women (Tjaden & Thoennes, 2000), thus obscuring inferences regarding directional relations. Indeed, across studies, the association between childhood trauma and physical IPA perpetration is significantly stronger for men than women (Smith-Marek et al., 2015). Second, despite the breadth of negative effects of psychological aggression (e.g., Jouriles et al., 1996; Lawrence et al., 2012), perpetration of psychological aggression is typically excluded from examinations of the impact of trauma.

Finally, the size of the relation between trauma exposure and IPA or PCA perpetration is consistently in the small to medium range (Black, Heyman, & Slep, 2001; Schumacher et al., 2001; Smith-Marek et al., 2015). Thus, the link between trauma and aggression may only occur under certain conditions. Because trauma may result in a variety of emotions that are not consistent across time and place, one such condition may be individuals' emotional state.

Trauma exposure and perpetration of family aggression are each associated with difficulties with fear and anger. Trauma exposure precedes development of various forms of fear-based psychopathology (e.g., McLaughlin, Green, Gruber, Sampson, & Zaslavsky, 2012) and is consistently associated with biased perception of threat (e.g., Thomas, Goegan, Newman, Aroni, & Sears, 2013), which often results in the experience of fear (Shackman, Shackman, & Pollack, 2007). Trauma exposure is also associated with excessive trait anger,
anger expression, and anger control deficits (e.g., Jakupcak & Tull, 2005). Similarly, although anger is consistently associated with the severity of physical IPA and PCA perpetration (Norlander & Eckhardt, 2005; Stith et al., 2009), fear is also linked to physical IPA perpetration (George et al., 2000) and anxiety is among the strongest correlates of physical PCA perpetration (Black et al., 2001; Stith et al., 2009). Moreover, biased perception of threat and threat appraisals are associated with physical IPA and PCA perpetration (e.g., Marshall & Holtzworth-Munroe, 2010; Milner, 2003; Wagner et al., 2015).

Although research suggests that anger, fear, and related processes may facilitate IPA and PCA perpetration, the exclusive use of global measures of individual tendencies to experience certain emotions limits causal inference because we do not know if global traits directly and immediately translate into corresponding contextual-level behaviors. Moreover, reasons exist to question whether fear consistently motivates (rather than inhibits) aggression, particularly among those with more extensive trauma histories. The tend-and-befriend theory of stress reactivity (Taylor et al., 2000) suggests that, particularly among women in the context of strong social bonds (e.g., with children and partners), fear initiates tending and befriending behaviors (i.e., nurturing and protecting offspring as well as affiliating with others to reduce risk) rather than fight-or-flight responses. This may be especially true for trauma survivors since stress reactions often persist long after trauma exposure. Indeed, the potential for relationship loss appears to be highly salient for trauma-exposed women when considering fear-inducing situations (Yeater, Trent, Viken, & McFall, 2010). Similarly, women in stressful marital relationships have been observed engaging in more positive parenting behaviors, seemingly as a compensatory effect (e.g., Belsky, Youngblade, Rovine, & Volling, 1991). Additionally, compared to those not exposed, trauma exposed male rodents behave submissively under fear-inducing conditions and aggressively only in the absence of such conditions (Delville, Melloni, & Ferris, 1998; Ferris, 2000; Ferris, Messenger, &
Therefore, fear, in particular, may inhibit aggressive impulses by simultaneously motivating submissive, or even affiliative, responses for some people.

The Present Study

In response to frequent calls for contextual conceptualizations of family aggression and to facilitate causal inference, we asked men and women to report on their emotional experiences immediately preceding their initiation of IPA and PCA. Given the pervasiveness of trauma exposure in the U.S. (i.e., approximately 83% of individuals have been exposed to an average of six types of trauma; Liu et al., 2017), we examined our questions among a sample unselected for trauma exposure, thus increasing generalizability of study findings. This sample includes men and women whose first-born child was roughly age 2.5 to 4 years during the measurement period as this is a time of increased family stress (Belsky et al., 1991) when rates of IPA remain high (Fritz & O'Leary, 2004) and rates of PCA begin to peak (Straus & Stewart, 1999). We used an interview to assess incidents of psychological and physical IPA and PCA, including antecedents of discrete incidents of aggression and the specific aggressive behaviors that occurred during each aggressive incident. This approach is distinct from existing work in which the total number of aggressive behaviors perpetrated over the course of a specified time frame (e.g., past year) are measured, thus conflating aggression frequency (i.e., number of incidents of aggression) with aggression persistence (i.e., number of aggressive acts used within discrete aggressive incidents). Because predictors of aggression initiation and within-incident aggression persistence may differ, we focus on the latter to best reflect disinhibited behavior that has the greatest potential for harm.

We hypothesized that (1) men’s breadth of trauma exposure would be positively associated with their persistence of IPA and PCA perpetration within aggressive incidents, (2) men’s degree of anger and fear experienced immediately prior to initiation of aggression would be positively associated with their persistence of IPA and PCA perpetration, and (3)
men’s breadth of trauma exposure would be more strongly associated with their persistence of IPA and PCA perpetration under conditions of relatively high anger and fear compared to conditions of relatively low anger and fear. We made these hypotheses based on the bulk of existing research and theory; however, we recognized the critical alternative hypothesis that motivates the need to examine the impact of fear during incidents of aggression.

We made these hypotheses for men, while cautiously expecting that they may hold true for women as well. However, multiple reasons exist to question whether the expected results will generalize to women, including: 1) overall, trauma is less strongly associated with women’s IPA perpetration than that of men (Smith-Marek et al., 2015); 2) compared to men, women’s IPA and PCA appear to be driven more by contextual and dyadic factors (Ross, Schaeffer, Alexander, Bethke, & Kretz, 2005); 3) given women’s greater role in child discipline (Kim et al., 2014; Straus & Stewart, 1999), some PCA behaviors (e.g., yelling, spanking) may reflect well-intentioned discipline (thus less emotional) more for women than men; and 4) the tend-and-befriend theory of stress reactivity suggests that fear motivates affiliation, rather than aggression, among women more so than men (Taylor et al., 2000).

Methods

Participants

Participants include 203 parents (109 women, 94 men) from 111 heterosexual couples whose first-born child was approximately 32 months old at the beginning of the study (in 19 families only one parent participated). Most participants were married (87% of women, 84% of men) and identified as non-Hispanic, White (90.8% of women, 92.6% of men). On average, women were 31.02 years of age ($SD = 3.81$, range = 23 - 45), with 15.78 years of education ($SD = 1.38$, range = 12 - 17), an annual family income of $85,500 ($SD = $34,429, range = $7,500 - $162,500), and worked 28.07 hours per week ($SD = 19.17$, range = 0 - 80). On average, men were 32.56 years of age ($SD = 5.12$, range = 25 - 50), with 15.43 years of
education ($SD = 1.75$, range = 11-17), an annual family income of $85,698 ($SD = $34,564, range = $22,500 - $162,500), and worked 43.44 hours per week ($SD = 14.17$, range = 0-80).

**Procedures**

All procedures were approved by The Pennsylvania State University Institutional Review Board (study number 36870, “Within-Incident Spillover of Family Aggression”). Participants were originally recruited to take part in a randomized controlled trial of Family Foundations (Feinberg et al., 2016), a psychosocial program for first-time expectant parents designed to enhance co-parental and parent-child relationships, parental mental health, and infant self-regulation (Feinberg & Kan, 2008). Couples had to be expecting a first child and cohabitating or married, with each parent at least 18 years of age. Couples were primarily recruited from childbirth education programs and Ob/Gyn clinics in three mid-Atlantic and one Southern state. After completion of the Family Foundations 24-month follow-up assessment, participants were recruited into the current study if they were in a cohabitating intimate relationship. Because recruitment overlapped with completion of the Family Foundations study, only participants who completed the 24-month follow-up assessment were recruited into the current study. With the exception of one participant who did not complete the first interview until his child was 47 months of age, the average child age at wave 1 was 31.86 months ($SD = 2.70$, range = 25-38).

Participants who completed at least one interview ($n = 203$) did not differ from those who declined to participate ($n = 113$; 49 women and 64 men from 66 couples) in terms of intervention group status, age, race, education, hours worked per week, or social desirability. Based on data from the 24-month assessment, participants who accepted versus declined participation also did not differ in terms of IPA perpetration. Men who accepted versus declined participation did not differ in terms of PCA perpetration, but women who participated in the study reported somewhat more PCA perpetration than those who declined
participants ($r[137] = -1.68, p = .094, d = .29$). Full results are available upon request.

Participants were asked to complete four telephone interviews during which the CIRCLE interview (see below) was administered. Because each interview assessed aggression during the prior 13 weeks, interviews could not be scheduled less than 91 days apart. The median time between interviews ranged from 112 to 115 days. Participants were paid $40 per interview, plus a $40 bonus for completing all four interviews.

**Non-identifiable data collection.** To facilitate valid self-reports, particularly of physical PCA, we utilized a system for non-identifiable data collection that, despite not allowing us to identify participants, allowed us to link each interview within each participant and partners within couples. For a detailed description of the procedures, see Marshall, Feinberg, Jones, and Chote (2017). When abusive behaviors were reported, interviewers urged participants to seek services and offered to assist in the process. Participants were reminded of available services during each telephone call and in the form of local resource lists included with payments.

**Attrition.** Most participants (65%; $n = 132$) completed all four interviews, while 14% ($n = 28$) completed three interviews, 10% ($n = 21$) completed two interviews, and 11% ($n = 22$) completed only one interview. Three participants (two from the same couple) withdrew from the study; the remaining cases of attrition were due to not being able to contact participants to schedule or complete interviews. In total, 677 interviews were completed.

Participants who completed all interviews did not differ from those who did not in terms of intervention status, age, race, education, income, hours employed per week, social desirability, or perpetration of IPA or PCA at child age 24 months.

**Measures**

**Demographic characteristics.** During pregnancy, participants reported on their race, ethnicity, and years of education. During the child age 24 months assessment, participants
reported on their age, hours employed per week, and family income. Family income was measured on an ordinal scale recoded to the midpoint of the range (e.g., $50,000-$54,999 recoded to $52,500) to create a continuous scale with a potential range of $0 - $162,500.

**Trauma exposure** During the Family Foundations 6-month postpartum assessment, participants completed the Traumatic Life Events Questionnaire (TLEQ; Kubany et al., 2000) to assess the breadth of their exposure to potentially traumatic events. The original TLEQ has demonstrated good test-retest reliability as well as content, convergent, and incremental validity across diverse samples (Kubany et al., 2000; Peirce, Burke, Stoller, Neufeld, & Booner, 2009). As is commonly conducted (Peirce et al., 2009), the original 21-item measure was modified in the following ways: 1) to increase reliability, participants indicated if each event ever occurred (yes/no) rather than the number of times each event occurred, and 2) to decrease the influence of particular types of events, assessments of conceptually related items were combined into single items, including a) abortions and miscarriages, b) life-threatening illnesses and life-threatening or permanently disabling events for a loved one, c) assault by caregiver, intimate partner, and acquaintance or stranger, and d) sexual abuse by persons of different ages at different points in development (originally comprising four items). As such, the modified version is an index of the breadth of experiences across 14 types of events (e.g., natural disasters, combat/warfare, robbery, stalking).

**Children, Intimate Relationships, and Confictual Life Events (CIRCLE) Interview.** The CIRCLE Interview (Marshall et al., 2017) uses an event history calendar methodology to measure incidents of psychological and physical IPA and PCA. In the current sample, estimates of total number of psychological and physical IPA and PCA behaviors and incidents derived from this instrument demonstrated convergent, discriminant, structural, predictive, and incremental validity as well as a relatively high degree of inter-partner reporting concordance (Marshall et al., 2017). The interview was administered via telephone.
by clinical psychology doctoral students. At the start of each telephone-administered
terview, participants note on a provided calendar the dates being assessed (the prior 13
weeks), days of personal significance (e.g., holidays, illnesses, work stressors), and days of
no face-to-face contact with their partner and/or child. Using these events to aid memory,
participants work backwards in time to review all incidents of self- and partner-perpetrated
IPA and/or PCA. Participants are provided a list of aggressive behaviors from the
psychological aggression and physical assault subscales of the Conflict Tactics Scales
(Straus, Hamby, Boney-McCoy, & Sugarman, 1996; Straus, Hamby, Finkelhor, Moore, &
Runyan, 1998) and are urged to consider additional aggressive acts not listed. For each
aggressive incident, they report the order, victim, and perpetrator of each aggressive
behavior. Aggressive behaviors are recorded by interviewers according to behaviors included
in the psychological and physical assault subscales of the Conflict Tactics Scales. Additional
seemingly aggressive behaviors are described. The context of participants’ descriptions is
used to help determine whether behaviors constitute aggression, defined as non-playful
behaviors that are threatening or forceful in nature. Incidents are defined as terminated if
emotional arousal and conflict behaviors returned near to baseline for one hour. Participants
also identify “regular patterns” of aggression, and, if present, report the usual order and
perpetrator of each aggressive behavior, frequency of the pattern, and start and end dates.

Three incidents are then selected for review of the context of aggression. For the
current study, the selection algorithm prioritized incidents with the greatest number of
aggressive behaviors and incidents in which both IPA and PCA occurred while balancing
incidents of IPA with incidents of PCA. See decision tree in supplemental material. Although
nonaggressive incidents are also identified such that all participants review four incidents (at
least one nonaggressive), here we only report on data from aggressive incidents. We also
limited analyses to incidents in which the respondent perpetrated the first act of aggression to
1) enhance similarity across incidents of IPA and PCA since PCA was always respondent initiated, and 2) exclude IPA that may be solely motivated by self-defense or retaliation.

Each of the chosen incidents is then reviewed in detail. Here we focus on participants' reports of their emotional experiences immediately prior to their first aggressive act. That is, participants are asked what “triggered” their first aggressive act, then they report how much fear, anger, sadness, and happiness they felt in response to the trigger on a 6-point scale ranging from not at all to extreme. For each emotion category, participants are provided nine synonyms that range in intensity. For fear, participants are told that when they feel fear, they might feel timid, cautious, uneasy, anxious, stressed, nervous, scared, afraid, or frightened. For anger, participants are told that when they feel anger, they might feel annoyed, bugged, irritated, frustrated, impatient, mad, pissed off, furious, or enraged. Participants are provided these descriptions and the rating scale on paper and verbally during the interviews.

Interviewers were trained to administer the interview using a behaviorally-based manual, interview protocol, role plays, group discussions, and live interviews with pilot participants. Interviewers were allotted space to note whether they questioned the validity of any of participants' answers, which was used for data cleaning purposes.

Statistical Analyses

We used multilevel modeling (MLM) techniques with a Poisson distribution and a correction for overdispersion to predict the number of acts of IPA or PCA perpetrated within discrete aggressive incidents. First, to examine simple relationships among study variables, we estimated six separate models for each gender with each outcome variable (number acts of IPA or PCA) predicted by a single independent variable (i.e., fear, anger, or trauma exposure) while accounting for nesting by incident. That is, emotions experienced within an incident were used to predict the number of aggressive behaviors perpetrated within the same incident, and we account for the presence of greater error among participants who reported
on relatively fewer incidents. No other variables were included in these models. Thus, given
the dependency that exists in the dataset, these analyses are the best approximation of
information that would normally be provided by zero-order correlations. Next, for the
primary analyses, we estimated four models for each gender with each outcome variable
predicted by fear or anger, trauma exposure, and interactions between fear or anger and
trauma exposure. We tested quadratic effects of trauma exposure to account for possible
threshold effects in the degree of trauma exposure needed to exert the greatest influence
(Felitti et al., 1998) and because, at the highest levels of exposure, additional events may
exert relatively little influence. These models account for family income, treatment condition,
and nesting by incident. We considered the potential impact of social desirability, within-
incident use of aggression toward another family member, and nesting by interview wave,
but excluded these variables from the models because no significant effects emerged.

Our final model predicting aggression by participant \( p \) within incident \( i \) may be
represented as:

\[
\text{Aggression}_{pi} = \beta_0 + \beta_1 \text{Trauma}_{pi} + \beta_2 \text{Emotion}_{pi} + \beta_3 \text{Emotion}_{pi} \times \text{Trauma}_{pi} + \beta_X p_i + \nu_{pi} + \nu_i + \epsilon_{pi}.
\]

Aggression, is the number of acts of IPA or PCA the participant perpetrated during each
aggressive incident, \( \beta_0 \), the estimated constant, \( \text{Trauma}_{pi} \) represents the number of types of
potentially traumatic events experienced by the participant (hereafter referred to as "breadth
of trauma exposure"), and \( \text{Emotion}_{pi} \) represents the degree of fear or anger the participant felt
in response to the aggression trigger (hereafter referred to as simply "fear" or "anger"). \( \beta_X p_i \)
represents the vector of control variables, \( \nu_i \) is the participant-level random intercept, and \( \epsilon_{pi} \)
represents a random disturbance term. \( \text{Emotion}_{pi} \times \text{Trauma}_{pi} \) represents linear moderation of
the participant’s breadth of trauma exposure (\( \text{Trauma}_{pi} \)) by the participant’s emotional state in
response to the aggression trigger (\( \text{Emotion}_{pi} \)). Quadratic moderation was represented as:
(2) $\beta_3 \text{Emotion}_p \times \text{Trauma}_p = \beta_3 \text{Emotion}_p \times \text{Trauma}_p + \beta_4 \text{Trauma}_p \times \text{Trauma}_p$

To simplify models, we only present the results of models with quadratic interaction effects if they were statistically significant; otherwise, we present results of models that only include the linear interaction effects. To estimate effect sizes, we include event rate ratios, which are similar to odds ratios and can be interpreted as the change in event counts (i.e., number of aggressive behaviors) due to one unit change in the predictor variable. In the figures, a “low” level of emotion is defined as an emotion rating of 1 and a “high” level of emotion is defined as an emotion rating of 5. The effects of primary predictor variables are graphed in the context of remaining model variables being held constant at their means.

Results

Table 1 includes the means and standard deviations for variables used in the main analyses. Because not all participants reported IPA and PCA perpetration, the number of participants included in each analysis varies. That is, 61 (65%) men and 74 (68%) women reported initiating at least one incident of IPA and 74 (79%) men and 87 (80%) women reported initiating at least one incident of PCA. Men and women reported engaging in a similar average number of IPA and PCA behaviors per aggressive incident, as well as similar mean levels of anger and fear prior to their first acts of IPA and PCA. Relatively few incidents of IPA included physical aggression (men: 1.97%, women: 7.76% of incidents), whereas approximately half of PCA incidents included physical aggression (men: 56.72%, women: 46.17% of incidents). Ratings of anger were consistently higher than fear; standardized effect size differences between anger and fear for each form of aggression ranged from $d = 1.07$ (women’s PCA) to $d = 1.55$ (women’s IPA). Most men (74.7%, $n = 65$) and women (71.6%, $n = 73$) reported exposure to at least one potentially traumatic event; rates were similar within each analytic subsample (ranging from 70.5% to 74.3%).
women reported exposure to a similar number of potentially traumatic event types.

**Univariate Prediction of Aggression Persistence**

In multi-level models accounting for nesting by incident and including only a single predictor variable, men’s incident-level fear (i.e., the intensity of fear experienced in response to the trigger of their first act of aggression) significantly predicted their use of a greater number of within-incident IPA behaviors ($b = 0.17$, $SE = 0.05$, $t = 3.19$, $p = .002$, $ERR = 1.19$, 95% CI = 1.07 - 1.32) and PCA behaviors ($b = 0.13$, $SE = 0.04$, $t = 3.52$, $p = .001$, $ERR = 1.14$, 95% CI = 1.06 - 1.22). Similarly, men’s incident-level anger was significantly associated with their use of a greater number of within-incident IPA behaviors ($b = 0.38$, $SE = 0.07$, $t = 5.28$, $p = .000$, $ERR = 1.47$, 95% CI = 1.27 - 1.70) and PCA behaviors ($b = 0.17$, $SE = 0.06$, $t = 2.79$, $p = .006$, $ERR = 1.18$, 95% CI = 1.05 - 1.33). Among women, incident-level anger was associated with their use of a greater number of within-incident IPA behaviors ($b = 0.14$, $SE = 0.04$, $t = 3.12$, $p = .002$, $ERR = 1.15$, 95% CI = 1.05 - 1.25), but incident-level fear was not ($b = -0.03$, $SE = 0.04$, $t = -0.97$, $p = .333$, $ERR = 0.97$, 95% CI = 0.90 - 1.04). The number of women’s within-incident PCA behaviors was not significantly associated with their incident-level fear ($b = -0.05$, $SE = 0.03$, $t = -1.52$, $p = .129$, $ERR = 0.95$, 95% CI = 0.90 - 1.01), nor incident-level anger ($b = 0.01$, $SE = 0.04$, $t = 0.32$, $p = .746$, $ERR = 1.01$, 95% CI = 0.94 - 1.09). Breadth of trauma exposure was significantly associated with the number of within-incident PCA behaviors that men used ($b = 0.05$, $SE = 0.03$, $t = 2.05$, $p = .044$, $ERR = 1.05$, 95% CI = 1.00 - 1.11), but not men’s number of within-incident IPA behaviors ($b = -0.03$, $SE = 0.04$, $t = -0.81$, $p = .422$, $ERR = 0.97$, 95% CI = 0.90 - 1.05), women’s number of within-incident IPA behaviors ($b = -0.01$, $SE = 0.04$, $t = -0.26$, $p = .796$, $ERR = 0.99$, 95% CI = 0.91 - 1.07) or women’s number of within-incident PCA behaviors ($b = 0.04$, $SE = 0.03$, $t = 1.35$, $p = .181$, $ERR = 1.04$, 95% CI = 0.98 - 1.10).

**Multivariate Prediction of Aggression Persistence**
Table 2 contains the results of the primary analyses. Control variables were not consistently significantly associated with the outcome variables; thus, for the sake of brevity, we do not present such results (available upon request). Because main effects are best interpreted based on the univariate analyses, we focus next on describing interaction effects.

**Men’s IPA.** Men’s degree of incident-level fear interacted with their breadth of exposure to potentially traumatic events (hereafter, simply “trauma exposure”) to significantly predict their number of within-incident IPA behaviors; however, the nature of the interaction was not as hypothesized. As displayed in Figure 1, Panel A, and as expected, IPA behavior counts remained relatively constant across levels of trauma exposure under conditions of relatively low fear. In contrast, under conditions of relatively high fear, trauma exposure was negatively associated with men’s IPA behavior count. Compared to men with the most trauma exposure, those with no trauma exposure used approximately 4.5 times more IPA behaviors under conditions of high fear. Additionally, under conditions of high fear compared to low fear, men with no trauma exposure used twice as many IPA behaviors whereas men with the most trauma exposure used roughly half the number of IPA behaviors.

Men’s incident-level anger did not significantly moderate the effect of men’s trauma exposure on their use of within-incident IPA behaviors.

**Women’s IPA.** Women’s incident-level fear interacted with their trauma exposure to significantly predict their within-incident IPA behavior count, with the nature of the effect being similar to that found among men. As displayed in Figure 1, Panel B, IPA behavior counts remained relatively constant across levels of trauma exposure under conditions of relatively low fear. In contrast, under conditions of relatively high fear, women’s trauma exposure was more strongly negatively associated with their IPA behavior count. Compared to women with the greatest trauma exposure, those with no trauma exposure engaged in approximately five times more IPA behaviors under conditions of high fear. Additionally,
under conditions of high fear compared to low fear, women with no history of trauma exposure engaged in nearly twice as many IPA behaviors whereas women with the most trauma exposure engaged in approximately half the number of IPA behaviors.

Women’s incident-level anger also interacted with their trauma exposure to significantly predict their within-incident IPA behavior count. As displayed in Figure 1, Panel C, IPA behavior counts remained relatively constant across levels of trauma exposure under conditions of relatively low anger. In contrast, under conditions of relatively high anger, women’s trauma exposure was negatively associated with their IPA behavior count. Compared to women with the most trauma exposure, those with no trauma exposure engaged in approximately six times more IPA behaviors under conditions of high anger. Also, under conditions of high anger compared to low anger, women with no trauma exposure engaged in approximately three times more IPA behaviors whereas women with the most trauma exposure engaged in little IPA regardless of the degree of anger experienced.

**Men’s PCA.** In contrast to results for men’s and women’s IPA, as displayed in Figure 2, Panel A, PCA behavior counts remained relatively constant across levels of trauma exposure under conditions of relatively low fear. In contrast, under conditions of relatively high fear, men’s trauma exposure was positively associated with their PCA behavior count. Compared to men with no trauma exposure, those with the most trauma exposure engaged in nearly five times more PCA behaviors under conditions of high fear. Additionally, under conditions of high fear compared to low fear, men with the most trauma exposure engaged in approximately three times more PCA behaviors whereas men with low levels of trauma exposure engaged in little PCA regardless of the degree of fear experienced.

Similarly, as displayed in Figure 2, Panel B, men’s PCA behavior counts remained relatively constant across levels of trauma exposure under conditions of relatively low anger. In contrast, under conditions of relatively high anger, men’s trauma exposure was more
strongly positively associated with their PCA behavior count. This effect was driven by men exposed to relatively low and moderate levels of trauma as men exposed to the most trauma did not report experiencing high levels of anger immediately prior to their use of PCA.

Compared to men with no trauma exposure, those with a moderate degree of trauma exposure engaged in approximately 4.5 times more PCA behaviors under conditions of high anger. Additionally, men with moderate levels of trauma exposure engaged in approximately four times more PCA under conditions of high anger compared to low anger.

Women's PCA. Neither the experience of incident-level fear nor anger significantly interacted with women's trauma exposure to predict their PCA behavior counts.

Discussion

Similar theoretical perspectives and substantial within-person IPA and PCA co-occurrence rates call for theoretical and empirical integration across these two traditionally independent domains of family research (Slep & O'Leary, 2005). In separate literatures, trauma exposure and associated difficulties with emotions (particularly anger and fear) are thought to predispose affected individuals to perpetrate both forms of family aggression (Holtzworth-Munroe & Stuart, 1994; Norlander & Eckhardt, 2005; Stith et al., 2009).

However, limited research exists regarding women's IPA and men's PCA perpetration. The current study is the first to simultaneously examine trauma exposure, anger, and fear as contributors to men's and women's IPA and PCA perpetration, with a focus on their persistence of aggression within incidents. To date, the reliance on global measures of anger and fear to predict IPA and PCA perpetration renders the immediate, within-incident functional influence of these emotions ambiguous (Norlander & Eckhardt, 2005). We tested this notion by examining the context and sequence of behaviors within aggressive incidents, including the emotions that immediately preceded initiation of IPA and PCA.

A substantial literature documents greater individual-level proneness to anger, angry
cognitions, anger expression, and frustration intolerance among individuals who perpetrate IPA or PCA (e.g., Norlander & Eckhardt, 2005; Stith et al., 2009). Results of this study support this literature using a methodology that provides a unique and essential form of data. That is, the experience of more anger immediately prior to men’s and women’s initiation of IPA, as well as men’s initiation of PCA, was followed by their use of more acts of aggression. A direct effect of anger on women’s PCA was not observed, despite women’s reports of high levels of anger immediately prior to their initiation of PCA. This result indicates that more negative emotion does not always lead to more aggressive behaviors. It may be that anger facilitated women’s initiation of PCA, but not the persistence (i.e., use of more than one act) of PCA. Alternatively, this finding may be unique to the current sample as women’s PCA often appeared to be used as a form of well-intentioned, but harsh, discipline; thus, replication with a more severely aggressive sample is necessary.

In contrast to research among non-human animals (e.g., Ferris, 2000), in the study of human aggressive behavior, the role of fear has received limited attention. We found that the experience of more fear immediately prior to men’s initiation of IPA and PCA was followed by their engagement in more acts of aggression. Given the role of threat perception and appraisals in IPA and PCA (e.g., Marschall & Holtzworth-Munroe, 2010; Milner, 2003), such fear may represent a response to perceived interpersonal threats (e.g., powerlessness, rejection) and additional ensuing social information processing biases. Not unexpectedly, fear was not found to motivate women’s IPA or PCA. Because fear may motivate women’s affiliative responses under conditions that threaten to jeopardize important social bonds (e.g., conflict with partners and children; Taylor et al., 2000), such affiliative responses may dampen simultaneous aggressive impulses. Additionally, women’s IPA and PCA appear to occur more in response to contextual or dyadic factors than their own psychological processes (e.g., Ross, 2011; Schueffer et al., 2005) and women’s PCA may largely reflect
well-intentioned discipline that is motivated by concern for children’s wellbeing (Levendosky, Lynch, & Graham-Bermann, 2000). Overall, these results illustrate the utility of simultaneous examination of men’s and women’s aggression as disparate motives may exist for men’s and women’s use of family aggression, and 2) provide a foundation on which to more fully examine fear as a salient proximal precipitant of men’s aggression.

Breadth of trauma exposure was positively associated with men’s use of PCA, but it was not associated men’s IPA or with women’s IPA or PCA perpetration. These findings reflect a number of issues. First, although trauma exposure and physical IPA and PCA are consistently associated in existing literature, the effect sizes are small to medium with smaller effects among women (Smith-Marek et al., 2015; Stith et al., 2009). Second, existing research concentrates on physically aggressive behaviors, while the vast majority of IPA and approximately half of PCA behaviors in the current study were of a psychological nature. Finally, and most importantly, we predicted the number of aggressive acts perpetrated within incidents in which respondents initiated the first act of aggression. As such, the absence of aggression and the frequency of aggressive incidents were not predicted. Thus, existing correlations between trauma exposure and total number of aggressive acts perpetrated in a broad timeframe (e.g., past year) may be partly a function of trauma leading to more frequent incidents of a single act of aggression. Additionally, incidents in which respondents’ IPA was used in response to, retaliation against, or self-defense from partners’ initiation of aggression were not included in the current study, but are included in more global assessment methods.

In the context of relatively little knowledge of men’s PCA, it is notable that trauma exposure was uniquely associated with men’s PCA. Because research suggests that men engage in child discipline less frequently than women (Kim et al., 2014) and much of the aggression reported in this study represents fairly normative family practices (i.e., corporal punishment or psychological aggression), men’s PCA may represent non-normative, abusive
behavior to a greater extent than men’s IPA or women’s IPA or PCA. Additionally, men may feel less competent in their parenting roles than women, especially during conflicts or child misbehavior (Guille, 2004). Perceived lack of control in stressful situations is a particularly salient precipitant of men’s aggression (George et al., 2000). Supporting this interpretation are further study results indicating that the positive association between men’s trauma exposure and PCA perpetration primarily occurs under conditions of high fear and anger. Thus, highly traumatized men’s PCA appears to be partly a function of emotional dysregulation rather than purely a representation of well-intentioned discipline. These findings are consistent with existing literature documenting individual differences in fear and anger as correlates of both trauma exposure and PCA perpetration (Black et al., 2001; Jakupcak & Tull, 2005; McLaughlin et al., 2012; Sithi et al., 2009).

Examination of the conditions under which aggression occurred reveals why trauma exposure was not significantly associated with all forms of family aggression. For example, unexpectedly, anger was only an especially potent predictor of women’s IPA among those with little trauma exposure. Women with a high degree of trauma exposure generally did not perpetrate any more IPA than women with very low levels of trauma exposure, regardless of the degree of anger experienced. This finding suggests that factors other than emotional arousal motivate highly traumatized women’s IPA, and may reflect highly traumatized women’s attempts to prevent retaliation and ensure safety by inhibiting their aggressive impulses when angry. Additionally, in combination with our finding that men’s trauma exposure and anger did not interact to predict their IPA, these results support Taft and colleagues’ (2007) findings demonstrating that, although trait anger partially accounts for the link between men’s PTSD symptoms and physical IPA perpetration, anger reactivity does not. Perhaps trait anger is correlated with other functionally more important variables (e.g., psychopathic personality characteristics) that do not lead to aggression via anger reactivity.
Examination of the role of fear in men and women's IPA also helps explain why trauma exposure was not associated with IPA perpetration. Interestingly, fear only predicted use of more IPA among men and women with low levels of trauma exposure, among those with high levels of trauma exposure, fear appeared to inhibit the persistence of IPA. These findings are consistent with research among rodents indicating that trauma exposure inhibits aggression and increases submissive behaviors specifically in fear-inducing situations (e.g., Delville, et al., 1998; Ferris, 2000). These findings may also reflect the operation of stress processes underlying "tending and befriending" (Taylor et al., 2000) among those (especially women) exposed to more trauma (Yenter et al., 2010). These findings stand in contrast to research indicating that men's trait-level insecure attachment and fear of abandonment, which occur to a greater degree among those with more severe trauma histories, are associated with more IPA perpetration, in general, presumably as a means of controlling partners and preventing abandonment (Holtzworth-Munroe & Stuart, 1994). Instead, these results suggest that, if highly traumatized men's fear reflects fears of abandonment, such fear may inhibit their IPA as a more functional means of preventing relationship conflict and/or loss. However, different results might be observed among those in which control is a more dominant feature of their relationships.

It is particularly notable that, among men high in trauma exposure, fear appeared to motivate the persistence of their PAC, but inhibit their IPA. It may be that men's fear was a consequence of direct interpersonal threats in the context of their partners, but not in the context of their children. Indeed, it has been found that rodents traumatized in adolescence are submissive in the context of threat and excessively aggressive in the absence of threat (Delville, et al., 1998; Ferris, 2000). In addition to emotional experiences, it will be important to begin assessing perceived threat immediately prior to, and during, aggressive incidents as well as other related and resultant aspects of social information processing.
The nature of the observed results may be partly a function of the sample. Participants presented with many factors that may protect against use of aggression, such as enrollment in a longitudinal study for the prior four years, relatively high mean education and income, and half the sample’s completion of a preventive coparenting intervention (though the latter two were statistically controlled in the primary analyses). Also, participants were unselected for trauma history and we did not test the potential impact of PTSD symptoms. Although the prevalence of trauma exposure was comparable to estimates among nationally representative samples, the breadth (i.e., number of trauma types) was lower (Lin et al., 2017). In more distressed or trauma exposed samples, results may be more robust. Thus, caution should be taken when interpreting current statistically nonsignificant results. Alternatively, given differences in parenting practices across social classes (Lareau, 2002), the pattern of some results may differ in more economically disadvantaged samples. It is also worth noting that the rate and severity of physical IPA are quite low in this sample compared to other similar community samples. Although we maintain the importance of predicting psychological, in addition to physical, aggression, these findings cannot be generalized specifically to physical aggression. These findings also cannot be generalized to families of older children.

Factors beyond sample-specific considerations also bear note. First, the accuracy of participants’ reports of their emotions relative to aggression perpetration is unknown, particularly across a 13-week reporting period. Given common knowledge of a link between anger and aggression, participants may have overestimated their experience of anger at times when they engaged in relatively more aggressive behaviors, thus inflating such correlations. In contrast, because a link between fear and aggression is not as well known and men appear to be especially inclined to underreport the experience of fear (Pierce & Kirkpatrick, 1992), the strength of such relations may be underestimated. Second, our focus on participants’ most aggressive incidents, rather than all incidents, may have minimized variability, making
observation of effects more difficult. Third, our modified measure of trauma exposure does not account for the frequency or chronicity with which such events occurred or the level of associated distress. As such, the effects of trauma exposure may also be attenuated. Finally, because each statistical model was based on only 61-87 respondents and multiple tests were conducted, until replication occurs, the stability of interaction effects is unknown.

Given the use of an innovative measurement approach, this study may raise more questions than it answers. Although all of our hypotheses regarding men’s PCA were supported, some hypotheses based on the primary trauma and IPA literatures were not supported, while support was provided for an alternative hypothesis based on literature outside of the family violence field. Further, although partly expected, many findings among men did not generalize to women. In future research, it will be important to make direct comparisons across genders as well as IPA and PCA. Nonetheless, we take the restricted support for traditional hypotheses seriously as it reflects a need to question assumptions about the functional role of trait-level variables in aggression perpetration. Indeed, exclusive use of global, individual-level constructs and a reluctance to consider family aggression to sometimes be a form of fear-based aggression may have produced inadequate and/or biased information to inform IPA and PCA intervention efforts, rendering these efforts remarkably limited in effectiveness (Bahco, Green & Robie, 2004; Geert, Van den Noortgate, Grieters, & Onghena, 2004). The current study illustrates a method that can promote new ways of conceptualizing and studying family aggression. Assessments based on inquiry within aggressive incidents, including separation of aggression initiation from within-incident persistence of aggression, may further illuminate potentially erroneous information about the nature and predictors of family aggression. Consequently, a better understanding of IPA and PCA could emerge and more effective prevention and intervention efforts may be developed.
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Table 1. Descriptive data for panels used in multi-level models.

<table>
<thead>
<tr>
<th></th>
<th>IPA</th>
<th>PCA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men</td>
<td>Women</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Number of aggressive behaviors perpetrated per incident</td>
<td>2.92</td>
<td>2.70</td>
</tr>
<tr>
<td>Treatment condition</td>
<td>0.61</td>
<td>0.49</td>
</tr>
<tr>
<td>Family income (in $10,000s)</td>
<td>8.54</td>
<td>3.55</td>
</tr>
<tr>
<td>Fear</td>
<td>2.22</td>
<td>1.37</td>
</tr>
<tr>
<td>Anger</td>
<td>4.06</td>
<td>1.15</td>
</tr>
<tr>
<td>Number of types of potentially traumatic events</td>
<td>1.82</td>
<td>2.01</td>
</tr>
<tr>
<td>Number of respondents</td>
<td>61</td>
<td>74</td>
</tr>
<tr>
<td>Number of incidents</td>
<td>152</td>
<td>232</td>
</tr>
</tbody>
</table>

Notes. IPA = intimate partner aggression, PCA = parent to child aggression. Fear and anger were measured on a 6-point scale ranging from none at all (1) to extreme (6); treatment condition includes control (0) and active (1) conditions.
Table 2. The prediction of aggression perpetration by exposure to potentially traumatic events and within-incident experiences of fear and anger.

<table>
<thead>
<tr>
<th></th>
<th>IPA</th>
<th>PCA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men</td>
<td>Women</td>
</tr>
<tr>
<td></td>
<td>$b$ (SE)</td>
<td>$t$</td>
</tr>
<tr>
<td>Fear</td>
<td>0.16 (0.06)</td>
<td>2.88**</td>
</tr>
<tr>
<td>Trauma</td>
<td>-0.01 (0.04)</td>
<td>-0.37</td>
</tr>
<tr>
<td>Fear x</td>
<td>-0.07 (0.02)</td>
<td>-2.76**</td>
</tr>
<tr>
<td>Trauma</td>
<td>-0.03 (0.02)</td>
<td>1.20*</td>
</tr>
<tr>
<td>Anger</td>
<td>0.39 (0.08)</td>
<td>4.97***</td>
</tr>
<tr>
<td>Trauma</td>
<td>-0.02 (0.04)</td>
<td>-0.48</td>
</tr>
<tr>
<td>Anger x</td>
<td>-0.06 (0.03)</td>
<td>-1.82</td>
</tr>
<tr>
<td>Trauma</td>
<td>-0.02 (0.02)</td>
<td>-1.07</td>
</tr>
</tbody>
</table>

Notes: Models control for family income, condition, and nesting by incident. Fear and anger were measured on a 6-point scale. IPA = Intimate partner aggression, PCA = parent to child aggression, ERR = event rate ratio, CI = confidence interval. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Figure 1 Caption. Men’s experience of high versus low levels of fear immediately prior to their first act of aggression moderates the impact of their breadth of exposure to potentially traumatic events on the number of acts of intimate partner aggression that they used within aggressive incidents (Panel A). Women’s experience of high versus low levels of fear (Panel B) and anger (Panel C) immediately prior to their first act of aggression moderates the impact of their breadth of exposure to potentially traumatic events (quadratic term) on the number of acts of intimate partner aggression that they used within aggressive incidents. Plots include all other variables in the multi-level models held constant at their means. Plots may not cover the full range of potentially traumatic events due to lack of sufficient data available across the full range.
Figure 2 Caption. Men’s experience of high versus low levels of fear (Panel A) and anger (Panel B) immediately prior to their first act of aggression moderates the impact of their breadth of exposure to potentially traumatic events on the number of acts of parent to child aggression that they used within aggressive incidents. Plots include all other variables in the multi-level model held constant at their means. Plots may not cover the full range of potentially traumatic events due to lack of sufficient data available across the full range.