

# A Dyadic Analysis of Partner Violence and Adult Attachment

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**Abstract** Studies of individual attachment features have linked insecure attachment to intimate partner violence (IPV), but these studies have neither taken into account couple-level factors nor evidence of high rates of dual-partner perpetration. The current study examined three forms of IPV as a function of both partners' adult attachment characteristics in order to better understand the maintenance of relationship violence by using a dyadic statistical design. Heterosexual couples ( $n = 163$ ) were recruited from the community. Results suggest that one's own attachment avoidance and a partner's attachment avoidance and anxiety was associated with perpetration of physical assault. Similarly, one's own attachment avoidance and a partner's attachment avoidance and anxiety was associated with perpetration of psychological aggression. Attachment anxiety influenced one's own perpetration of sexual coercion and their partner's perpetration. Thus, functional analysis of violence in terms of attachment and risk regulation may afford targeted interventions to certain types of couples.

**Keywords** Intimate partner violence (IPV) · Attachment · Couples · Actor-partner interdependence model (APIM)

## Introduction

IPV includes physical, psychological, and sexual violence toward a former or current romantic partner (Center for

Disease Control 2015). It is considered a serious problem that affects many people around the world, including over ten million people in the United States within a given year (Center for Disease Control, 2015). Nearly 1 in 4 women (22.3 %) and 1 in 7 men (14 %) have been victims of severe physical violence by a romantic partner in their lifetime (Breiding et al. 2014), and approximately 10 % of men and women have been raped by their partners or been victims of other forms of intimate partner sexual abuse during their lifetime (Breiding et al. 2014).

Women were traditionally thought to be the primary victims of IPV (Banks et al. 2013; Tjaden and Thoennes 2000). However, as more studies have examined female violence and bidirectional violence, a phenomenon where both men and female partners are perpetrators, the evidence suggests that men are also at risk (Schafer et al. 1998; Straus and Gelles 1986). In fact, a meta-analysis and a recent literature review found that women actually perpetrate IPV at equal or even higher rates than men (Archer 2000; Langhinrichsen-Rohling et al. 2012), although women tend to cause less injury to their partners. Furthermore, bidirectional violence is common across a wide range of participants that included population-based to criminal justice samples (Langhinrichsen-Rohling et al. 2012).

Given the high rates of partner violence and the bidirectional perpetration of violence, it is apparent that IPV is better understood in the context of both partners' characteristics having some unique and combined effect on the outcome of partner violence. In general, it may be better for research to move away from a strict perpetrator-victim perspective of partner violence to a perspective that takes into account the working dynamic of both partners' characteristics when understanding the etiology and maintenance of IPV (Bartholomew and Allison 2006). By doing so, the relationship dynamic (i.e. both partners' characteristics) will be better understood in the context of IPV, and be more effectively incorporated into intervention strategies.

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## Attachment

According to Bowlby's attachment theory (Bowlby 1969, 1973, 1980), people are born with an innate need for close attachments with significant others in order to meet basic emotional needs. Individuals develop expectations during childhood regarding the availability of caregivers to provide basic means for survival and to fulfill emotional needs. As the individual develops, these expectations become increasingly established as "internal working models" about the self, others, and the world that generalize to other relationships, including adult romantic relationships (Hazan and Shaver 1987).

Theories support a link between insecure attachment and IPV. According to Bowlby's (1984) attachment theory violent acts against an intimate partner may arise from not having one's attachment needs met. Insecure attachment has also been associated with a fear of separation from the attachment figure, which is thought to lead to behaviors of self-protection (Murray et al. 2006) or violence (Walker 1983). Empirically, insecure attachment characteristics have been linked to both IPV perpetration (Babcock et al. 2000; Holtzworth-Munroe et al. 1997a, 1997b; Kesner and McKenry 1998) and victimization (Kesner and McKenry 1998; Scott and Babcock 2010) for individuals in intimate relationships. Holtzworth-Munroe et al. (1997a, 1997b) found that violent husbands, compared to nonviolent husbands, were more anxious about relationship abandonment. They also found that violent husbands were more avoidant of dependency and more uncomfortable with closeness than nonviolent-nondistressed husbands. These findings suggest that characteristics representative of attachment insecurity are predictive of husband-to-wife violence. When studying attachment categorically, Holtzworth-Munroe et al. (1997a, 1997b) found that violent husbands were more likely to be classified as having preoccupied or disorganized attachment orientations.

Babcock et al. (2000) also found that violent husbands were more likely to be classified into one of the insecure attachment categories than nonviolent husbands, and that particular wife behaviors predicted acts of violence by men of different attachment styles. Specifically, using sequential analyses of descriptions of past violent episodes, violence by a husband classified as preoccupied was often precipitated by a wife withdrawing from her husband; whereas violence by a batterer classified as dismissing tended to be precipitated by his wife being defensive or standing up to her husband. The authors theorized that preoccupied batterers' violence is in response to abandonment fears whereas dismissing batterers' violence functions as a form of control over his partner. Although wife behaviors during violent incidents were examined in this study, wife attachment styles were not considered.

Although these studies provide an important basis for examining attachment as it relates to violence perpetration, they

are limited by their foci on male-to-female violence and on individual attachment patterns. High rates of bidirectional violence demonstrate that IPV perpetration is not a male-dominated phenomenon, and thus, require researchers to include the study of women's violence perpetration in experimental designs. Furthermore, more appropriate statistical procedures are available to include both partners in the study of attachment's influence on IPV. The next step in couples' research is to include both partners in the analyses to understand how partners' attachment characteristics influence each other to instigate and maintain partner violence.

## The Actor Partner Interdependence Model

Both members of a romantic relationship interact with each other in a non-independent way and exert mutual influence on each other's thoughts, emotions, and behaviors. In fact, many relationship theories recognize that one partner's characteristics may influence the other partner's outcomes (for a summary, see Kenny et al. 2006). The interdependence of couples' responses poses quite a problem for relationship researchers and could lead to biased results if analyzed improperly (Campbell and Kashy 2002). There is a method, however, that can parse out the unique and independent effects (actor effects) and the effects dependent upon the other partner (partner effects). This method is known as the Actor-Partner Interdependence Model (APIM; Kenny 1996), and it is popular in couples' research because it treats the dyad as the unit of analysis.

Although popular in couples' research (Adams and Baptist 2012; Burr et al. 2013; Campbell et al. 2001; Eid and Boucher 2012; Erol and Orth 2013; Gana et al. 2013; Stroud et al. 2010), application of the APIM model is less commonly used with violent couples. Especially considering the high rates of bidirectional violence (Langhinrichsen-Rohling et al. 2012; Straus and Gelles 1986) between intimate partners, it is surprising that the APIM model has rarely been used with this population. By applying the APIM model to violent couples, IPV research may be able to understand how individual characteristics contribute to violence perpetration within the framework of the couple and be able to understand the individual and partner factors that maintain IPV.

## Overview of the Present Study

The current study had three primary aims. The first aim was to identify whether or not gender differences of influence exist among romantic partners for attachment and three forms of intimate partner violence: physical, psychological, and sexual violence. It was hypothesized that men and women would not differ in their influences for these variables. The second aim was to understand individual-level influence of adult

attachment characteristics on these forms of IPV, while taking into account influence from the other partner. It was hypothesized that one's own attachment avoidance and anxiety would uniquely influence their own perpetration of IPV, while taking into account their partner's influence. The third aim was to understand partner-level influence of adult attachment characteristics on these forms of IPV that are unique from individual-level effects. It was predicted that one partner's attachment avoidance and anxiety would also predict the other partner's perpetration of IPV.

## Method

### Participants

Couples ( $N = 214$ ) were recruited from the community through local newspaper advertisements and flyers stating "Couples experiencing conflict needed to participate in a research study." Eligible participants had to be 18 years of age, married or living together as if married for at least six months, heterosexual, and able to speak and write English proficiently. Trained undergraduates administered a telephone screening interview of a shortened version of the Revised Conflict Tactics Scale (CTS-2; Straus et al. 1996) and the Dyadic Adjustment Scale (DAS; Spanier 1976) to the female partners to determine eligibility for the study. Fifteen CTS-2 questions were selected for the phone screening procedure to broadly assess physical assault victimization and perpetration during the last year of the relationship (e.g. "how many times in the past year have you had a sprain, bruise or small cut because of a fight with your partner?" and "how many times in the past year has your partner slapped you?"). The full CTS-2 was administered to eligible participants during their laboratory session. Based on the telephone screening, couples were included if they reported at least two incidents of aggression in the past year, or reported moderate to severe levels of relationship distress with no accompanying aggression between partners. Moderate to severe levels of relationship distress were determined by a score less than 4 out of 7 on item 31 of the DAS, where 1 is "very unhappy", 4 is "happy", and 7 is "perfectly happy" with the present relationship.

From the original studies, 51 couples were excluded from the present analyses if either partner did not complete relevant questionnaires. Therefore, 163 violent and non-violent couples were included in the present analyses. Men's average age was 31.90 ( $SD = 9.51$ ), and women's average age was 30.29 ( $SD = 9.61$ ). Mean gross family income was approximately \$48,000 per year ( $SD = 133,154$ ). The median education level was some college. The majority of the sample was African American (51.5 %), with 28.2 % White, 13.8 % Hispanic, 2.5 % Asian, and 4 % Native American or Other. The average length of relationship was 4.43 years ( $SD = 4.56$ ).

## Measures

**Intimate Partner Abuse** The Revised Conflict Tactics Scale (CTS-2; Straus et al. 1996) was administered separately to men and women. The CTS-2 is a 78-item questionnaire that is frequently used in IPV research to assess the frequency of abuse experienced between partners in the last year. There are five subscales of intimate partner abuse on the CTS-2; physical assault, psychological abuse, and sexual coercion were specifically studied in the present analyses. The measure has demonstrated good construct validity (Shorey et al. 2012; Straus et al. 1996). Internal consistencies for the CTS-2 range from  $r = .79$  to  $.95$  (Straus et al. 1996).

**Adult Attachment** Both partners separately completed the Adult Attachment Scale (AAS; Collins and Read 1990), an 18-item questionnaire where individuals rate the representativeness of statements to their feelings about interpersonal relationships. The items are designed on a dimensional scale with three factors, Depend, Close, and Anxiety, each made up of six items. Examples of items include, "I find it difficult to trust others completely" (depend), "I often worry that my partner does not really love me" (anxiety), and "I find it relatively easy to get close to others" (close). AAS scores have been shown to correlate with other attachment measures and to have appropriate validity (Sperling, Foelsch, & Grace, 1996). According to a psychometric meta-analysis reliabilities range from  $.733$  to  $.761$  across the three subscales, with the lower bound of a 95 % confidence interval staying above  $.70$  (Graham and Unterschute 2015). Therefore, it has demonstrated acceptable reliability for research purposes.

The dimensional nature of this measure allows for the detection of attachment degree on each factor. It is helpful to understand how strongly adults identify with each factor and how that is a function of their interactions with an intimate partner. Collins (2008) proposed a method for converting AAS items to Avoidance and Attachment dimensions. In this way, we are able to measure how the degrees of attachment in the anxiety and avoidance domains contribute to the maintenance of partner violence. The attachment anxiety and avoidance scores for each participant were used for the current study.

### Procedure

Questionnaire and observational data were collected as part of two larger studies in which male participants came into the lab for two separate assessment sessions, and their female partners came into the lab during the second session. Participants provided informed consent prior to participation, and the study protocol was approved by the institutional review board where the study took place. All study procedures and treatment of human subjects were conducted in compliance with ethical

standards of the American Psychological Association. Session one lasted approximately three hours and required the male participant to attend alone, and session two lasted approximately 3 h and required participation by both partners.

During the first assessment session, male participants were administered a series of pencil and paper questionnaires. Then they participated in a standardized anger induction task, were debriefed, and provided payment for participation. During the second assessment session, both male and female participants were separately administered questionnaires, and they next engaged in two marital interaction tasks together. Couples were then interviewed separately about their history of relationship violence, and then reunited for debriefing and payment. Couples were paid \$90 to \$100 for their participation in both assessment sessions. Procedures for both sessions were standardized in the order described above in order to prioritize participant safety, as the female partner was only present for the session when the anger induction task was not administered. Only attachment and intimate partner violence questionnaires were analyzed in the current study. Since questionnaires were administered at the beginning of assessment sessions, it was impossible for them to have been influenced by other laboratory tasks like the anger induction task.

### Data Analytic Strategy

Since it is well established that self-reports of violence are often underreported (Hamby 2005; Riggs et al. 1989; Sugarman and Hotaling 1997), a composite score average of self- and partner-report of the target's violence was created and utilized for the dependent variables. Specifically, the composite score for the husband's physical assault was created by taking the average of his self-report of physical assault and the wife's report of his physical assault. In contrast, the composite score for the wife's physical assault was created by taking the average of her self-report of physical assault and the her husband's report of her physical assault. Couples were dropped from the analyses if at least one partner had missing AAS or CTS-2 data. Both men and women's violence scores and self-reported attachment scores were entered into APIM models to test the actor and partner effects of adult attachment characteristics that are associated with both male and female perpetration of IPV.

**Preliminary Analysis** Preliminary analyses were planned to justify the need for further exploration of the relation between attachment and IPV via dyadic data analysis. Specifically, a test of gender differences on the variables of interest and bivariate correlations among the variables of interest were preliminarily conducted.

**Test of Gender Differences on the Variables** Descriptive statistics were conducted by gender to find the means

and standard deviations for male and female responses on two attachment dimensions (avoidance, anxiety) and three violence outcomes (physical assault, psychological aggression, sexual coercion). A MANOVA was conducted to test for gender differences on these variables of interest.

**Correlations among the Variables** Bivariate correlations were conducted separately for men and women among the two attachment dimensions (avoidance, anxiety) and the three violence outcomes (physical assault, psychological aggression, sexual coercion). Intraclass correlations were also included. We expected to see correlations between partners, demonstrating the interdependence of responses within a dyad and justifying the utilization of the Actor-Partner Interdependence Model. However, we did not expect to see correlations between partners on the attachment dimensions, based on findings from previous research (Simpson et al. 1996; Campbell et al. 2001).

**Primary Analysis** The structural equation model (SEM) version of the APIM model in the IBM Statistical Package for the Social Sciences, Analysis of Moment Structures (SPSS AMOS, Version 22) was used for the present analyses. There were three analogous APIM tests to examine the effects of attachment dimensions (avoidance, anxiety) on each IPV outcome variable (physical assault, psychological aggression, sexual coercion) separately.

**Gender Differences** Gender differences in effects were tested by constraining the actor and partner paths to be the same for men and women and comparing its model fit to the model where effects are free to vary by gender using a Chi Square Difference Test. Since there were no latent variables in the free-to-vary models, the chi-square and degrees of freedom equal zero.

**Individual and Partner Influence** Following the test of gender differences in effects, the resulting models were interpreted to identify couple-level influence of attachment on IPV following recommended guidelines (Badr 2004; Campbell and Kashy 2002; Wickham and Knee 2012). The analyses were based on the structural equation model version of the Actor-Partner Interdependence Model (APIM; Kenny 1996), and treated the couple as the unit of analysis. More specifically, data from both dyad members were treated as nested scores within the same group, the couple, to account for the interdependence of dyadic data. The model suggests that one partner's independent variable score influences his or her own dependent variable score (actor effect) as well as the partner's dependent variable score (partner effect). Attachment was treated as a continuous mixed predictor variable, as there is variation both within and between dyads.

The formulas for the models are listed below:

#### Free-To-Vary Effects Model Equations

Wife Perpetration of IPV =  $a(\text{Wife Avoidance}) + b(\text{Wife Anxiety}) + c(\text{Husband Avoidance}) + d(\text{Husband Anxiety}) + E_W$ .

Husband Perpetration of IPV =  $e(\text{Wife Avoidance}) + f(\text{Wife Anxiety}) + g(\text{Husband Avoidance}) + h(\text{Husband Anxiety}) + E_H$ .

#### Constrained Effects Model Equations

Wife Perpetration of IPV =  $a(\text{Wife Avoidance}) + b(\text{Wife Anxiety}) + c(\text{Husband Avoidance}) + d(\text{Husband Anxiety}) + E_W$ .

Husband Perpetration of IPV =  $c(\text{Wife Avoidance}) + d(\text{Wife Anxiety}) + a(\text{Husband Avoidance}) + b(\text{Husband Anxiety}) + E_H$ .

## Results

### Preliminary Analysis

**Gender Differences** A MANOVA used to examine gender differences on all predictor and outcome variables found no differences between men and women,  $F(5, 320) = 1.767$ ,  $p = .119$ . Since the overall test found no significant differences, it is not necessary to interpret univariate tests of gender differences.

**Correlations among the Variables** Bivariate correlations among partners' attachment characteristics and violence variables demonstrate non-independence and suggest a need to use dyadic data analyses. Correlations are reported in Table 1, where correlations for men are displayed above the diagonal, correlations for women are displayed below the diagonal, and intraclass correlations (ICCs) between men and women are displayed along the diagonal. All variables of interest were correlated for men. For women all violence variables were correlated with each other, but attachment dimensions did not demonstrate universal correspondence. For women, attachment anxiety was correlated with attachment avoidance, physical assault, and sexual coercion but not with psychological aggression. Additionally, women's avoidance scores were correlated with physical assault and psychological aggression but not with sexual coercion. As expected, attachment variables were not correlated between men and women. However, all violence variables had strong positive relationships.

### Primary Analysis

**Gender Differences** The first aim of the current study was to elucidate any gender differences for heterosexual couples on their level of influence between attachment factors and IPV perpetration. It was found that there were no gender differences in effects for physical assault,  $\chi^2(4, N = 163) = 9.44$ ,  $p = .051$ , psychological aggression  $\chi^2(4, N = 163) = 1.48$ ,  $p = .83$ , or sexual coercion  $\chi^2(4, N = 163) = 8.95$ ,  $p = .06$ . Since there were no gender differences in effects, the more simple models were interpreted for actor- and partner-effects.

**Individual Influence** The second aim of the current study was to identify the unique individual influence of attachment on IPV, while taking into account couple-level influence. These tests were measured and tested as actor effects. The results for physical assault as an outcome are presented in the first two rows of Table 2, and they are presented visually in Fig. 1. Results for avoidant attachment were supported, with a significant effect for one's own avoidant attachment relating to their own perpetration of physical assault ( $b = 7.49$ ,  $SE = 1.67$ ,  $z = 4.49$ ,  $p < .001$ ). However, contrary to expectations, actor attachment anxiety did not significantly predict one's own physical assault perpetration ( $b = 2.68$ ,  $SE = 1.52$ ,  $z = 1.76$ ,  $p = .08$ ). Results followed a similar pattern for psychological aggression as an outcome variable, with a significant actor effect for attachment avoidance ( $b = 10.43$ ,  $SE = 2.36$ ,  $z = 4.42$ ,  $p < .001$ ) but a barely near significant actor effect for attachment anxiety ( $b = 4.17$ ,  $SE = 2.15$ ,  $z = 1.94$ ,  $p = .052$ ). Results for this test are presented in Table 3 and Fig. 2. Actor effects for sexual coercion as an outcome variable followed a different pattern than the other forms of violence. Results demonstrated a significant effect for attachment anxiety predicting one's own perpetration of sexual coercion ( $b = 2.47$ ,  $SE = .82$ ,  $z = 3.02$ ,  $p = .003$ ) but not for attachment avoidance ( $b = 1.61$ ,  $SE = .90$ ,  $z = 1.80$ ,  $p = .072$ ). Results for this test are presented in Table 4 and Fig. 3.

**Partner Influence** The third aim of the current study was to understand unique partner-level influence of attachment on IPV. The tests of whether one's own attachment characteristics predict his or her partner's violence were measured and tested as partner effects. The results for physical assault as an outcome variable are presented in Table 2 and Fig. 1. It was found that attachment anxiety ( $b = 4.87$ ,  $SE = 1.52$ ,  $z = 3.21$ ,  $p = .001$ ) and attachment avoidance ( $b = 4.34$ ,  $SE = 1.67$ ,  $z = 2.60$ ,  $p = .009$ ) for one partner are associated with physical assault perpetration of the other partner. A similar pattern of partner effects was found when examining psychological aggression as an outcome variable, where attachment anxiety ( $b = 7.28$ ,  $SE = 2.16$ ,  $z = 3.38$ ,  $p < .001$ ) and attachment avoidance ( $b = 4.97$ ,  $SE = 2.36$ ,  $z = 2.10$ ,  $p = .035$ ) were

**Table 1** Correlations among study variables

Study Variables	1	2	3	4	5
1. Anxiety	-.070	0.279***	0.1666*	0.207**	0.240**
2. Avoidance	0.333***	-0.040	0.306***	0.264**	0.225**
3. Physical Assault	0.165*	0.227**	0.722***	0.711***	0.552***
4. Psych. Aggress.	0.144	0.259**	0.654***	0.729***	0.612***
5. Sexual Coercion	0.168*	0.114	0.593***	0.500***	0.589***

Correlations for men appear above the diagonal; correlations for women appear below the diagonal. Correlations along the diagonal are absolute agreement intraclass correlations (ICCs) between men and women. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

associated with the other partner's perpetration of psychological aggression. Results for this test are presented in Table 3 and Fig. 2. Table 4 and Fig. 3 display results for the test of sexual coercion as an outcome variable. Regarding sexual coercion, it was found that attachment anxiety influenced the other partner's perpetration ( $b = 2.19$ ,  $SE = .82$ ,  $z = 2.69$ ,  $p = .007$ ), but contrary to expectations, it was found that attachment avoidance was not related to the other partner's perpetration ( $b = .59$ ,  $SE = .90$ ,  $z = .66$ ,  $p = .51$ ).

## Discussion

The current study examined three forms of partner violence as a function of both partners' adult attachment characteristics in order to identify potential gender differences in influence and to parse out the extent to which each partner's characteristics contribute to the maintenance of relationship violence by using a dyadic statistical design. The relation between insecure attachment characteristics and IPV has been well-established in independent studies (Babcock et al. 2000; Holtzworth-Munroe et al. 1997a, 1997b; Kesner and McKenry 1998). The current study tested the generalization of these findings when taking into account couple-level factors, since it is considered best practice to conduct couples research by taking into account factors from both partners

**Table 2** APIM of constrained paths for attachment on physical assault ( $N = 163$  dyads)

APIM Parameters	Estimate	SE	Z	$\chi^2$
Actor Effects				9.44
Anx→Physical Assault	2.68	1.52	1.76	
Av→Physical Assault	7.49***	1.67	4.49	
Partner Effects				
Anx→Physical Assault	4.87**		1.52	
Av→Physical Assault	4.34**	1.67	2.60	

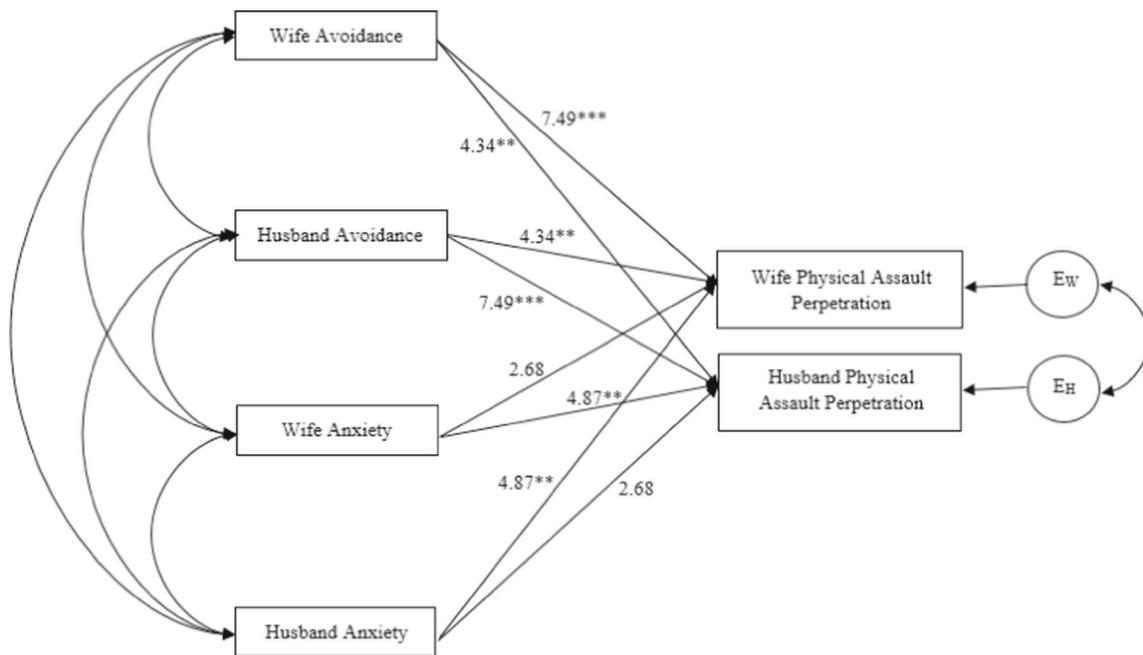
The estimates are unstandardized regression coefficients. Anx = attachment anxiety; Av = attachment avoidance. \*\* $p < .01$ ; \*\*\* $p < .001$

(Kenny et al. 2006). Especially since adult attachment characteristics and IPV are inherently interpersonal, it is essential to study their relations dyadically. Furthermore, understanding of the influence of both partners' attachment characteristics may afford targeted interventions to certain types of couples.

First, the current study tested for differences in effects of attachment on violence perpetrated by men and women, as previous researchers have requested (Gormley 2005). To our knowledge, the current study is the first to investigate gender differences in the relation between attachment and IPV. Because no gender differences were found, one can assume that women and men influence each other to a relatively equal extent in terms of attachment and violence. The similarity of influence between attachment and IPV for men and women is consistent with theoretical explanations for gender symmetry in violence perpetration (Mayseless 1991).

Results from the current study suggest that both one's own attachment dimensions and those of a romantic partner can influence one's own perpetration of IPV. The types of effects, however, differed depending on the type of IPV under question. Physical assault and psychological aggression shared similar patterns of effects between partners, contrary to previous findings (Bookwala and Zdaniuk 1998; Dutton et al. 1994; Roberts and Noller 1998). Perhaps the current study's use of dyadic analysis explains this difference. The current study found that one's own physical assault and psychological aggression perpetration could be predicted by one's own attachment avoidance, which is in line with studies of individual characteristics (Babcock et al. 2000; Holtzworth-Munroe et al. 1997a, 1997b). Since people with elevated avoidance scores are generally resistant to partner dependency and uncomfortable with closeness, violence may function as a way to create physical or emotional distance (Mayseless 1991). In other words, it may be used to exert control over the other partner in order to facilitate the desired avoidance.

Given existing literature on the presence of attachment anxiety features for violent men, it is surprising that the current study did not find actor effects for attachment anxiety on physical assault and psychological aggression. Perhaps anxious attachment on its own is not enough to predict one's own perpetration of IPV when partner-level factors are taken into



Note. \*\*p<.01, \*\*\*p<.001

Fig. 1 Constrained Path Model for Physical Assault.

account. Another possibility is that variables outside the scope of the current study are moderating the relationship between attachment anxiety and violence like personality disorder (Hamberger and Hastings 1991; Holtzworth-Munroe et al. 1997a; Ross and Babcock 2009) or alcohol abuse (Crane et al. 2014).

Regarding partner effects for physical assault and psychological aggression, elevated attachment avoidance or anxiety for the partner predicted one’s own perpetration. It is theorized that violence serves the same function of controlling the other partner, but the reasons for control depend on the partner’s attachment features (Mayseless 1991). Perhaps lack of trust in the partner’s commitment (partner avoidance) can influence violence perpetration in order to exert power in the

relationship and control over the partner to stay romantically close (Roberts and Noller 1998). However, having a partner who worries about relationship abandonment (partner anxiety) can influence one’s own violence perpetration for a different reason. It is possible that violence in this case stems from frustration with the partner’s fear of separation, and is used as a harmful way to remove the unwanted worries being expressed by the other partner especially when the actor has avoidant attachment features (Mayseless 1991).

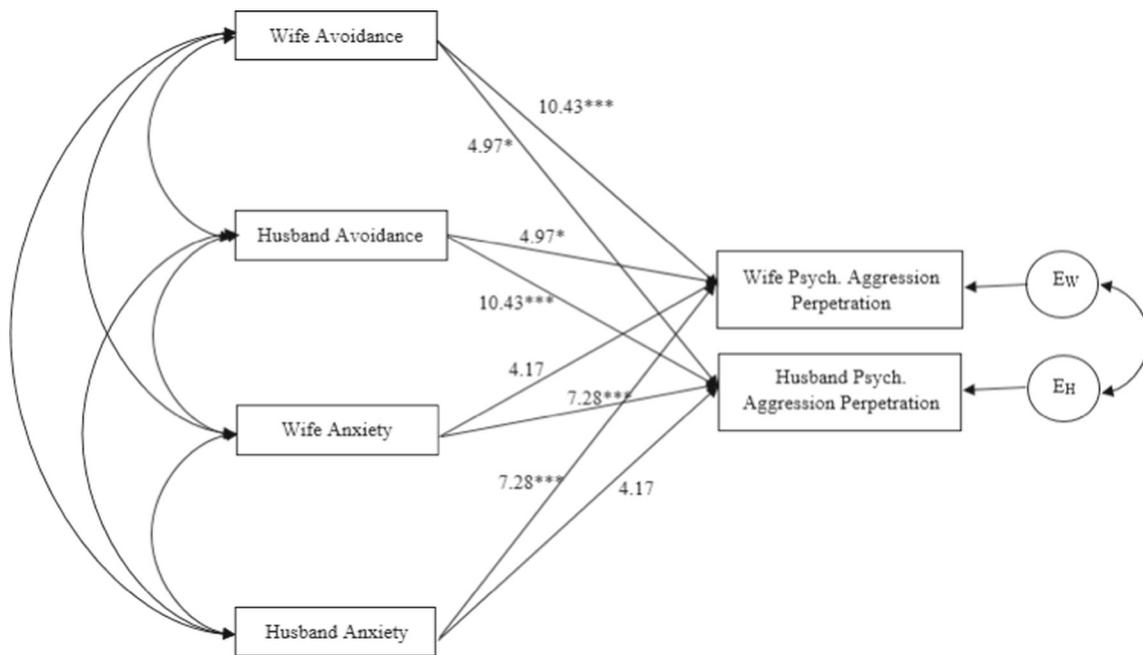
Effects for sexual coercion suggest that actor and partner attachment anxiety are predictors of sexual violence perpetration by both men and women. In other words, elevated attachment anxiety for either partner predicted sexual coercion perpetration by one of the partners. Individuals scoring high on anxious attachment desire high levels of intimacy and approval from their partners, and these thoughts and feelings may have been manifested as sexually coercive behaviors for the current sample as a desperate attempt to achieve relationship closeness (Brassard et al. 2007; Schachner and Shaver 2002).

Findings from the current study are in line with the risk regulation model (Murray et al. 2006), which, to our knowledge, has never been extended to IPV couples. The model proposes that individuals behave in ways that balance closeness seeking with protection from rejection in order to feel safely dependent in the relationship. People act in ways that are self-protective when faced with interpersonal risk. Attachment avoidance may be related to internal working models that the individual is vulnerable to rejection, and thus, has resulted in distancing behaviors to protect the self from the

Table 3 APIM of constrained paths for attachment on psychological aggression (N = 163 dyads)

APIM Parameters	Estimate	SE	Z	$\chi^2$
Actor Effects				1.48
Anx→Psych. Aggression	4.17	2.15	1.94	
Av→Psych. Aggression	10.43***	2.36	4.42	
Partner Effects				
Anx→Psych. Aggression	7.28***	2.16	3.38	
Av→Psych. Aggression	4.97*	2.36	2.10	

The estimates are unstandardized regression coefficients. Anx = attachment anxiety; Av = attachment avoidance. \*p < .05; \*\*\*p < .001



Note. \* $p < .05$ , \*\*\* $p < .001$

Fig. 2 Constrained path model for psychological aggression

consequences of rejection. In the current study, attachment avoidance was associated with actor and partner perpetration of physical assault and psychological aggression. Thus, individuals were more likely to endorse self-protective attachment avoidance when those forms of IPV were present in the relationship. Emotional and physical distancing behaviors (i.e. physical assault and psychological aggression) may be elicited by self-protective attachment avoidance of rejection by either partner (Maysseless 1991).

According to the risk regulation model, some people with higher self-confidence may try to increase closeness behaviors following forms of rejection (Murray et al. 2008). Partner attachment anxiety was associated with perpetration of all three forms of IPV in the current study. It is possible that the perpetrator reacts with violence to the unwanted closeness from the anxious partner (Maysseless 1991).

Table 4 APIM of constrained paths for attachment on sexual coercion (N = 163 dyads)

APIM Parameters	Estimate	SE	Z	$\chi^2$
Actor Effects				8.95
Anx→Sexual Coercion	2.47**	.82	3.02	
Av→Sexual Coercion	1.61	.90	1.80	
Partner Effects				
Anx→Sexual Coercion	2.19**	.82	2.69	
Av→Sexual Coercion	.59	.90	.66	

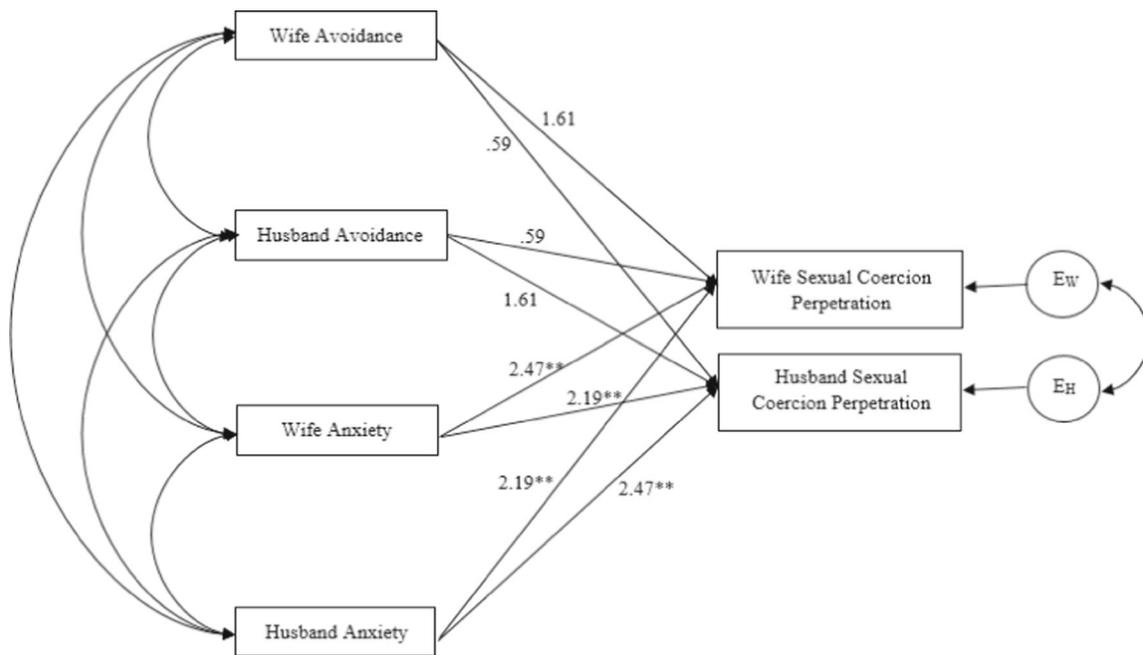
The estimates are unstandardized regression coefficients. Anx = attachment anxiety; Av = attachment avoidance. \*\* $p < .01$

Although IPV has been previously explained in terms of attachment at the individual level for male-to-female perpetrated violence, the current study improved on previous research by taking into account the influence of both individuals on the phenomenon of IPV no matter the gender of the perpetrator. Use of the Actor Partner Interdependence Model (Kenny 1996) in IPV research allows for a more appropriate analysis of how characteristics of both partners can influence each other to maintain violence. It also allows for the study of a broader scope of relationship dynamics and exchange of relationship needs between partners. If the relationship needs are unmet, the relationship could lead to violence, as in the current study, or to other relationship problems like resentment or dissolution, or even to individual problems like anxiety, depression, and other forms of psychopathology.

Given the high rates of bidirectional violence (Archer 2000; Langhinrichsen-Rohling et al. 2012), studies of men and women as perpetrators are necessary. If researchers limit the study to individual-level factors or gender-specific perpetration, then IPV may not be accurately understood. It is important for future researchers to take into account the interdependent nature of couples' characteristics in order to appropriately study IPV and attachment between romantic partners.

Limitations/Criticisms

The current study has several limitations that should be addressed in the future. First, the sample under investigation was limited to distressed violent and nonviolent couples that



Note. \*\*p<.01

Fig. 3 Constrained path model for sexual coercion

elected to participate in a research project. It is unclear how these results would generalize to shelter samples or court-ordered offenders.

There is an ongoing debate regarding the measurement of attachment. Measuring attachment characteristics categorically is preferred in clinical settings due to the ease in comparing phenomena to prototypical cases for treatment purposes (Maunder and Hunter 2009), but it is criticized in research settings for its inability to distinguish meaningful differences within categories (Mikulincer and Shaver 2007). The current study’s analysis of attachment as a continuous variable may be criticized for its comparative difficulty in application to clinical practice. However, the method of converting attachment dimensions to categories excludes individuals with scores at the median, which was expected to eliminate approximately 7 % of subjects (Collins 2008). Regardless of the clinical utility of categories, the method to procure them was considered too costly in terms of power to make them useful statistically. Further, taxometric study has shown that attachment is naturally dimensional and its measurement can be appropriately used in that fashion (Fraley and Waller 1998).

The current study utilized the Adult Attachment Scale (Collins and Read 1990), a self-report measure of attachment that has demonstrated good reliability and validity. The use of self-report measures of attachment has been criticized in comparison to interview measures (e.g. AAI; George et al. 1985), as it has been proposed that self-report and interview measures capture different components of adult attachment and demonstrate a low correlation to each other ( $r = .09$ ; Roisman et al.

2007). More specifically, self-report measures are likely to capture conscious attachment attitudes, whereas interview measures are more likely to capture unconscious attachment attitudes (Ravitz et al. 2010).

We opted to create a composite score of violence for each partner’s outcome variables. Although this method was chosen to address concerns regarding biased reporting of violence, an alternative model may include self-report and partner-report of violence for each partner (four total outcomes) as outcome variables to elucidate the level of influence attachment characteristics may separately have on different types of reports. Concerns regarding statistical power guided the decision to alternatively create a composite score in the present analyses. Future studies may be better served to examine how attachment characteristics influence cross-reporters (van Dulmen and Goncy 2010).

A final limitation of the current study is that its cross-sectional design prevents the distinction between causal and correlational relationships of the predictor and outcome variables. Even though causal effects are inconclusive in this study, it is hopeful that the current findings will serve as a foundation for the association between actor and partner characteristics and violence that may be addressed in future longitudinal studies designed to uncover causal relations.

**Clinical Implications**

Results from the current study suggest that attachment characteristics of both partners influence each other to maintain IPV.

Batterer intervention programs may be better served to consider the influence of both partners' attachment history in the design of a treatment plan. Clinical interventions may be more effective by incorporating skills to address attachment insecurity themes between partners via functional analysis of violence.

Let us consider a couple where one partner has elevations for attachment anxiety and the other partner has elevations for attachment avoidance. The behaviors by the partner with anxious attachment features may stem from a fear of abandonment and a desire for closeness. The partner's need is to feel a sense of relationship security and closeness from the other partner. Thus, the anxious partner may be overly involved to the point of seeming annoying to the other partner in a desperate attempt to feel close to the other. The partner with avoidant attachment features may interpret the involved behaviors as overwhelming or intrusive, which may result in the perpetration of IPV. The avoidant partner's need in that moment is to be independent and to have the other partner stop engaging in behaviors that threaten that independence. In this case, both partner's needs are not being met and violence is being used by the avoidant partner as a way to stop the unwanted behaviors from happening.

When this exchange is evaluated at the functional level, it is apparent that slight adjustments to meet the other partner's attachment needs may have prevented violence. For example, a signal could be devised to communicate that one's attachment needs are not being met, which could prompt a brief time out or discussion about needs for closeness. More generally, finding ways to communicate about attachment needs and to follow through with a plan to provide those needs for each other in an adaptive way may be helpful. The anxious partner may need the other partner to use physical forms of affection, like hugging or kissing, in order to feel secure in the relationship and less likely to engage in preoccupied behaviors. On the other hand, the avoidant partner may need an agreement from the other to have scheduled independent time in order to have some agreed-upon temporary distance. In this way, behaviors from both partners can be understood in terms of serving some relationship attachment needs, which can guide treatments to find more adaptive ways to have the needs met that do not include violence.

Current batterer intervention programs are criticized for being largely ineffective (Arias et al. 2013; Babcock et al. 2004; Feder and Wilson 2005). One possible reason for their inefficacy is that they target the batterer's characteristics without taking into account relationship factors that may be triggering or maintaining partner violence (Babcock et al. 2004). There is mounting evidence that partner violence is usually not unidirectional, and may be better studied as a bidirectional process between both partners (Schneider and Brimhall 2014). In cases of bidirectional violence and female-perpetrated violence, perhaps including both partners in treatment would improve the effectiveness of domestic violence interventions.

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