The Effects of Intimate Partner Violence on Relationship Satisfaction Over Time for Young At-Risk Couples: The Moderating Role of Observed Negative and Positive Affect

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Abstract

In the current study, the moderating effects of observed negative and positive affects on the association between intimate partner violence (IPV, physical aggression) and relationship satisfaction were examined over a 5-year period. Multiwave data were obtained from a sample of young-adult men at risk for delinquency and their women partners (n = 121 couples; ages 21-26 years). The trajectory of each partner's relationship satisfaction and the effects of dyadic IPV and affect were tested using HLM analyses and a two-level (within-couple and between-couple) dyadic growth model. Average levels of dyadic positive affect were associated with relationship satisfaction for both men and women. For men, increases in couples' positive affect over time were linked to increases in relationship satisfaction, and increases in couples' externalizing negative affect were linked to decreases in satisfaction. For women, higher levels of couple IPV predicted lower levels of satisfaction. Couples' internalizing negative affect amplified the effects of IPV on satisfaction over time. Increases in IPV were associated with declines in satisfaction for couples with high levels of internalizing negative affect. Conversely, average levels of externalizing negative affect did not amplify the association between IPV and relationship satisfaction. In fact, the adverse influence of IPV on relationship satisfaction was greater for couples who displayed low levels of externalizing affect. Because of the inverse association between externalizing affect and relationship satisfaction, these findings were interpreted to suggest that the salience of IPV was greater in couples whose relationship satisfaction was not already impaired by high levels of negative affect.

Keywords

Couples; intimate partner violence; negative affect; positive affect; relationship satisfaction; longitudinal

Intimate partner violence (IPV, physical aggression) is a common problem in romantic and marital relationships, with research suggesting that IPV between partners occurs in between one third and two thirds of young couples in dating, cohabiting, and newlywed relationships (e.g., Capaldi, Shortt, & Crosby, 2003; Fergusson, Boden, & Horwood, 2008; Langer, Lawrence & Barry, 2008; McLaughlin, Leonard, & Senchak, 1992; Schumacher & Leonard, 2005). Recent studies have established, moreover, that IPV is a strong prospective predictor of relationship dissolution (Shortt, Capaldi, Kim, & Owen, 2006; Zlotnick, Johnson, & Kohn,

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2006). Nonetheless, many couples that experience IPV do not separate, a fact that has lead researchers to examine the association between IPV and relationship satisfaction.

Though perhaps counterintuitive, research findings regarding the association of IPV and relationship satisfaction have been inconsistent. Husband-to-wife IPV has been found to predict decreases in wives' marital satisfaction 1 year later (Testa & Leonard, 2001), and changes in husbands' IPV were predictive of changes in husbands' satisfaction over 4 years (Lawrence & Bradbury, 2007). However, other studies have found no significant association between IPV and relationship satisfaction, for marriages with severely abusive husbands (Jacobson, Gottman, Gortner, Berns, & Shortt, 1996) and across the first 4 years of marriage for newlywed couples (Hellmuth & McNulty, 2008). For the newlywed sample, dissatisfied couples did not report more IPV than satisfied couples, and across the 4-year period, couples were not more likely to report IPV when they were experiencing dissatisfaction compared with when they were experiencing satisfaction. Furthermore, there is some surprising evidence of violent couples with relatively satisfied relationships (Williams & Frieze, 2005). The inconsistency in the observed relations between IPV and relationship satisfaction may suggest that the association is being moderated by other factors (Baron & Kenny, 1986).

Relatively little research has been directed at understanding how IPV may interact with other relationship variables to effect relationship quality. Recent work in a sample evidencing a high prevalence of IPV suggests the importance of positive processes for relationship quality. Observed positive affect during couples' interactions predicted relationship satisfaction 2.5 years later (Kim, Capaldi, & Crosby, 2007), and observed positive engagement (e.g., communicative behaviors) of the women promoted relationship satisfaction over a 7-year period (Laurent, Kim, & Capaldi, 2008). Although the mechanisms involved in how positive processes influence relationship are not clear, a viable possibility is that positive affect impacts relationship quality by moderating the effects of negative processes (Fincham, Stanley, & Beach, 2007). The current study seeks to increase understanding of the influences of IPV on relationship satisfaction by examining the moderating effects of observed positive and negative affect (both externalizing and internalizing) during couples' interactions on the association between IPV and relationship satisfaction, thereby identifying protective and risk effects on relationship quality over time.

The study was based in two theoretical perspectives. First, a dynamic developmental systems perspective (Capaldi, Shortt, & Kim, 2005), which views the prior development and risk behaviors of both partners as well as contextual factors (e.g., relationship status) as contributing to relationship processes (e.g., conflict, aggression) and outcomes (e.g., relationship breakdown, relationship satisfaction). These behaviors and processes are viewed as continually evolving or developing over time. The model has a strong interactional perspective that considers the active role of both partners in shaping their own and each other's behavior (e.g., Capaldi et al., 2003). Regarding developmental risk, we have established in prior research that a history of antisocial behavior for the man and the woman, and a history of depressive symptoms for the woman are risk factors for IPV (Kim & Capaldi, 2004). Furthermore, antisocial behavior is predictive of relationship breakup (Farrington, 2003), and depression and marital discord have been found to co-occur (e.g., Beach, 2001). Thus, externalizing and internalizing factors are critical to relationship functioning. These factors point to the likely importance of hostile and sad/anxious affect to relationship functioning over time. There is evidence that men and women involved in violent relationships show more anger than those not experiencing IPV (Jacobson et al., 1996; McNulty & Hellmuth, 2008). In association with IPV, such negative affect may be particularly deleterious to relationship satisfaction over time. Risk factors are more likely to co-occur than to function independently, and they may interact such that the impact of a risk factor on an outcome may depend on the other risk factors the couple experiences (Rauer, Karney, Garvan, & Hou, 2008). Examining the influence of IPV

on relationship satisfaction in the context of other affective processes that are expected to function as risk or protective effects (e.g., positive affect) can advance the understanding of IPV and relationship quality.

The second theoretical basis for the current study is that of Gottman and colleagues (e.g., Gottman, Murray, Swanson, Tyson, & Swanson, 2003) regarding the role of increased negative affect and decreased positive affect in eroding marital satisfaction. The affective nature of couples' interactions observed during marital discussions (and not whether couples resolved their conflict) was implicated in relationship outcomes (Gottman & Levenson, 2000). Observed negative affect has consistently been found to predict deteriorating relationship satisfaction, both because couples 'get stuck' in bouts characterized by reciprocated and escalating negativity and because negative affective states constrict couples' behavioral repertoires and appear to interfere with their ability to engage in more productive or sustaining interchanges (e.g., Gottman, 1994). Conversely, couples who are able to use positive affect to repair or decelerate negative interchanges fare better with regard to marital satisfaction and relationship maintenance (e.g., Gottman, Coan, Carrére, & Swanson, 1998).

This study builds on previous research by dismantling negative affect into externalizing and internalizing negative affect and examining IPV and relationship quality in the context of these two types of negative affect. The distinction between externalizing and internalizing negative affect is similar to the marital research involving hard emotions--such as anger and power versus soft emotions such as hurt and distress (Sanford, 2005; Schoebi, 2008)--and negative affects that are considered high intensity--such as contempt and belligerence versus low intensity such as sadness and tension (Gottman et al., 1998). Thus, externalizing and internalizing negative affect may serve different functions in couples' interactions and provide additional insight regarding relationship process over time.

An additional consideration is that IPV is not static and tends to decline or desist over time (e.g., Fritz & O'Leary, 2004; Kim, Laurent, Capaldi, & Feingold, 2008; O'Leary et al., 1989; Quigley & Leonard, 1996). Utilizing multiwave data, a recent study of newlywed couples determined that spouses who were most aggressive early in marriage had IPV trajectories with the most fluctuations and desistance over 4 years while the IPV trajectories remained relatively stable for spouses that were initially nonaggressive or moderately aggressive (Lawrence & Bradbury, 2007). The variability found in IPV levels emphasizes the necessity of having multiple time points for testing hypotheses regarding the effects of IPV and observed affect on relationship satisfaction.

The current study examined whether observed negative and positive affect moderated the association between IPV and relationship satisfaction over a 5-year period, encompassing three waves of data collection. We hypothesized that negative affect would amplify and positive affect reduce the effects of IPV on relationship satisfaction. On the basis of the dynamic developmental systems model, gender differences were examined within a dyadic framework whereby men's and women's relationship satisfaction were predicted by dyadic IPV and dyadic observed affect. Contextual factors examined in the associations between relationship satisfaction, IPV, and affect included the length of relationship, the type of relationship (dating, cohabiting, and married), and whether there were children in the household.

Methods

To examine the developing romantic relationships and adjustment of the Oregon Youth Study (OYS) men and their romantic women partners, the OYS-Couples Study was initiated. The OYS was a longitudinal study of 206 boys and their families recruited with a 74% success rate from public schools located in neighborhoods with a higher-than-usual incidence of juvenile

delinquency. The families were largely European American (90%), and the occupation of 72% of the mothers and 75% of the fathers were categorized as skilled manual, semiskilled, unskilled, or menial workers (Hollingshead, 1975). Although the majority of the OYS men did not have conduct problems when they were recruited as boys in Grade 4, over one half of them were arrested at least once by age 18 years. The OYS men were assessed annually, with participation rates in young adulthood of 93% or above.

The current study focuses on the OYS men and their women partners in the OYS-Couples Study who completed an assessment about every 2 years in young adulthood: Time 1 (T1) when, on average, the men and women were age 21 years, Time 2 (T2) when the men were age 24 years and the women were age 23 years, and Time 3 (T3) when the men were age 26 years and the women were age 25 years. An assessment at age 18 years (T0) was not included because many of the OYS men were not in a stable relationship and thus participation rates were low. To maximize the number of intact couples in the current study, couples that participated in two or more time points were included, resulting in a total of 121 couples -- 81 at T1, 119 at T2, and 102 at T3.

Procedure

At each time point, the assessment included separate in-person interviews, including also questionnaires and staff ratings for the men and women and a videotaped discussion session for the couple, which was later coded. The discussions were 34 minutes in length and included a warm-up task and party planning segments (5 minutes each), problem solving (7 minutes for each partner's relationship-related issues), and personal goals (7 minutes for each partner's goal). The Specific Affect Coding System (SPAFF; Gottman, McCoy, Coan, & Collier, 1996) was used to code couples' affects during these interaction tasks at all three time points. The observational variables in this study did not include the warm-up task. For a description of safety procedures in the study, see Capaldi et al. (2003) or Shortt et al. (2006).

Measures

The SPAFF coders were research staff that participated in a 3-month training to learn the code and establish reliability. Coders detected affect by integrating verbal content, voice tone, context, facial expression, gestures, and body movements. There were 18 mutually exclusive and exhaustive affects. Two observers independently coded a randomly selected 15% of interactions, and coder reliability was regularly monitored. The overall kappa ranged from .74 to .90 across the three time points. Overall kappas are presented because they include not only coders' ability to detect behavior but also coders' ability to detect the absence of behavior (e.g., neutral affect) while correcting for chance agreement (Bakeman & Casey, 1995).

Observed Affect—Three affect categories were empirically derived through principal components analysis: (a) positive affect (interest, validation, humor, enthusiasm, affection), (b) externalizing negative affect (criticism, domineering, contempt, belligerence, threats, defensiveness, anger), and (c) internalizing negative affect (sadness, fear/tension, stonewalling or refusing to respond). The factor structure for positive affect and the two kinds of negative affects was largely similar across time and partner. For the men and women, each affect accounted for similar proportions of the variance in the principal components analyses at each time point (for men and women on average, respectively, positive affect about 33% and 32%, externalizing negative affect 23% and 24%, and internalizing negative affect 12% and 13%). The associations between men's and women's positive affect ($r = .80$, $p < .001$ or above) and their externalizing negative affect ($r = .45$, $p < .001$ or above) were similar at each time point. The associations between men's and women's internalizing negative affect were more variable across time ($r = .26$, $p < .05$ at T1; $r = .52$, $p < .001$ at T2; $r = .06$, $p > .05$ at T3). The duration proportions, computed as the number of seconds spent in each affect divided by the total

discussion time (34 minutes), of men and women's affect were averaged to create dyadic levels of affect. High levels of dyadic affect reflect high proportions of time that couples were observed exhibiting the affect during interactions.

Intimate Partner Violence—The IPV construct included indicators from the self-report, partner reports, and coder ratings from the discussion task on physical aggression toward a partner.[1] The coder ratings provided the impression of a cultural expert on the behaviors displayed during the interactions. The coder ratings included similar questions regarding observed aggressive behavior as the reported measure (e.g., Conflict Tactics Scale, Straus, 1979;Straus, Hamby, Boney-McCoy, & Sugarman, 1996). Each partner was rated on the occurrence of (a) any moderate IPV (e.g., "participant pushed, grabbed, slapped partner during taping"), (b) any severe IPV (e.g., "participant kicked, bit, or hit partner with fist"), and (c) indications during the discussion of such behaviors in the past with the partner.

The self-reported and partner reported items were from four sources: (a) an interview that solicited detailed information about any IPV occurring in the past year, (b) the Conflict Tactics Scales – Original Version (Straus, 1979) and Revised Version (Straus et al., 1996), (c) the Adjustment with Partner Questionnaire – Short Form (from the National Survey of Health and Stress; Kessler, 1990), and (d) the Dyadic Social Skills Questionnaire (Capaldi, 1994). Scale alphas ranged from .46 to .91 for men and women across time.

Indicators for the IPV construct needed to be internally consistent and converge with other indicators to be included. The indicators were standardized using a 0-3 scale and then averaged to produce construct scores. The associations between the men's and women's IPV construct scores were $r = .69$, $p < .001$ at T1; $r = .48$, $p < .001$ at T2; and $r = .59$, $p < .001$ at T3. Thus, men's and women's IPV construct scores were averaged to create dyadic levels of IPV. High levels of dyadic IPV reflected high levels of couples' participation in physical aggression toward a partner. The IPV construct scores identified 75% of the couples as having IPV in their relationships at T1, 63% of the couples at T2, and 58% of the couples at T3.

Contextual Factors

Length of relationship, relationship type, and children in the household—
Partners reported on their length of relationship, relationship type, and children in the household in their interviews. The average length of relationship was 92 weeks at T1, 172 weeks at T2, and 257 weeks at T3. Relationship type was coded 1 for dating, 2 for cohabiting, and 3 for married. Couples reported that 27% were married at T1, 43% at T2, and 62% at T3. Children (biological or step) in the household was coded 0 for no children and 1 for any children in the household. For these intact couples, 30% had children in their households at T1, 47% at T2, and 57% at T3.

Relationship satisfaction—Both partners reported on their relationship satisfaction using the Dyadic Adjustment Scale (DAS; Spanier, 1976). One of the items was coded from 0-4 (versus 0-6) on the version used; as a result, the range of the total score was 0 to 149 instead of the usual 0 to 151. The Cronbach alphas ranged from .87 to .93 across the three time points. Men and women's relationship satisfaction scales were significantly associated at each time point ($r = .45$, $p < .001$ at T1; $r = .57$, $p < .001$ at T2; and $r = .41$, $p < .001$ at T3). As the relationship satisfaction of both the men and women were examined in the study, separate scores were retained.

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[1]It is standard for the IPV constructs in the OYS-Couples Study to include mirosocial data of IPV using the Family Peer and Process Code (FPPC; Stubbs, Crosby, Forgatch, & Capaldi, 1998) in addition to the coder ratings and reported data. However, this study's constructs did not include FPPC observational data to prevent shared method variance with the SPAFF observational data.

Analytic Strategy

The data in this study have a hierarchical or multilevel structure in two senses: (a) multiple observations over time are nested within individuals and (b) men's and women's outcomes are nested within couples. This type of data structure lends itself to a multilevel modeling strategy, specifically dyadic growth curve modeling as outlined in Raudenbush, Brennan, and Barnett (1995). In this framework, variability is modeled separately for within-couple and between-couple components, taking into account the interdependence of partners' trajectories. Hierarchical linear modeling (HLM), as described by Raudenbush and Bryk (2002), was used to estimate a two-level dyadic growth model. At Level 1 (within-couple), men's and women' relationship satisfaction scores are regressed on partner-specific intercepts and slopes; whereas at Level 2 (between-couple), partners' intercept and slope terms serve as outcomes to be explained. This modeling approach is preferred for examining couples longitudinal data when both similarities and differences between partners' trajectories are of interest (see Atkins, 2005).

The models that follow include hypothesized IPV and affect effects at both the within-couple and between-couple levels. To test the hypotheses that dyadic IPV, dyadic affect, and the interaction of IPV and affect all relate to relationship satisfaction, three separate dyadic growth models were tested: (a) IPV by positive affect, (b) IPV by externalizing negative affect, and (c) IPV by internalizing negative affect. As an illustration, the two-level equation representing the IPV by positive affect model is shown below. The bold terms indicate the underlying growth model, whereas the nonbold terms indicate the predictors added to explain variability in men's and women's relationship satisfaction: Level 1 (within-couple)

$$DAS = (\mathbf{man})_{it}\,[\boldsymbol{\pi_{m0i}} + \boldsymbol{\pi_{m1i}}(\mathbf{linear})_{it} + \pi_{m2i}(IPV)_{it} + \pi_{m3i}(\text{positive affect})_{it} + \pi_{m4i}(IPV \times \text{positive affect})_{it}]$$
$$+ (\mathbf{woman})_{it}\,[\boldsymbol{\pi_{w0i}} + \boldsymbol{\pi_{w1i}}\,\mathbf{linear})_{it} + \pi_{w2i}(IPV)_{it} + \pi_{w3i}(\text{positive affect})_{it} + \pi_{w4i}(IPV \times \text{positive affect})_{it}] + \boldsymbol{e_{it}}$$

Level 2 (between-couple)

$$e.g.,\ \pi_{m0i} = \beta_{m00} + \beta_{m01}\,(\text{mean IPV}) + \beta_{m02}\,(\text{mean positive affect} + \beta_{m03}\,(\text{IPV by mean positive affect}) + u_{m0i}$$

(the same equation is used to predict each of the men's and women's growth terms, $\boldsymbol{\pi_{m/w0i}}$-$\boldsymbol{\pi_{m/w1i}}$, and the Level 1 IPV/affect predictor terms are modeled at Level 2 as fixed effects, e.g., $\pi_{m2i} = \beta_{m20}$).

To better understand how these effects operate at Levels 1 and 2, we considered the effect of dyadic positive affect, with the understanding that the same principles hold for the other affect, IPV, and IPV by affect terms. At Level 2, the couples' mean score for positive affect, centered around the grand mean for the sample, is entered to predict the men's and women's intercept and slope terms. The interpretation of the effect is that being generally higher or lower on positive affect, compared with other couples in the sample, predicts the level of and/or change in relationship satisfaction for each partner. At Level 1, on the other hand, the couples' score for positive affect at each wave is centered around the couples' own mean for positive affect, and this couple mean-centered score is used to predict his and her relationship satisfaction at each wave (a time-varying covariate). This effect indicates that, controlling for whether the couple is generally high or low on this variable, fluctuations in positive affect within the course of the couples' relationship are related to partners' satisfaction.

To test the hypothesized effects of affect and IPV on relationship adjustment, a series of HLM models were run: (a) A baseline or unconditional model with no predictors depicted average men's and women's trajectories of relationship satisfaction across the three time points to

provide the average trajectories for the sample (fixed effects) and the correlation between partners' trajectories (covariance of random effects). The baseline model was centered at T2, meaning that the intercept terms represent men's and women's satisfaction in the middle of the time period examined. Not only did T2 contain the most complete data for the sample, it also allows us to interpret the intercepts as an estimate of "average" satisfaction for the couple, rather than beginning or ending points of a trajectory. Also, centering at a middle time point tends to reduce the correlation between intercept and slope. (b) IPV and affect predictors were added to build full/saturated models. (c) Predictors not contributing to overall model fit were deleted to create more parsimonious final models. (d) Finally, each of the final model effects was tested with missing data interactions to confirm that they were not biased by missing data (see explanation below).

Missing Data

Of 121 couples that participated, 60 couples participated in all three time points and 61 couples participated in two time points. Given the large proportion of the sample missing one time point, it was important to ascertain whether and to what extent couples with missing data impacted the results. Following the recommendations made by Hedeker and Gibbons (1997), a random-effects, pattern-mixture model approach was used in which a dummy-coded missingness term (indicating that the couple was missing data at either T1 or T3) and interactions between missingness and predictor variables were included in model testing.

Results

Means and standard deviations for relationship satisfaction and time-varying predictors at the three time points are presented in Table 1. At the mean level, while IPV and observed negative affect (externalizing and internalizing) appear to decrease with time, relationship satisfaction and observed positive affect remained similar over time. The autocorrelations for relationship satisfaction across time were significant ($p < .001$) and ranged from .50 to .69 for women and .63 to .73 for men. For the within-time intercorrelations among the time-varying predictors, IPV and externalizing negative affect were significantly associated at all time points (range in r from .36 to .45, $p < .001$); IPV and internalizing negative affect were only significantly associated at T3, $r = .28$, $p < .01$; IPV and positive affect were only significantly negatively associated at T2, $r = -.22$, $p < .05$; externalizing and internalizing negative affect were significantly associated only at T3, $r = .42$, $p < .001$; externalizing and positive affect were significantly negatively associated at all time points (range in r from $-.28$ to $-.52$, $p < .05$ to $p < .001$); and internalizing negative affect and positive affect were significantly negatively associated at T1, $r = -.28$, $p < .001$, and T3, $r = -.23$, $p < .05$. For within-time correlations with men's relationship satisfaction, IPV was significantly negatively associated at T2, $r = -.33$, $p < .001$; externalizing negative affect was significantly negatively associated at all time points (range in r from $-.36$ to $-.46$); internalizing negative affect was significantly negatively associated at T3, $r = -.39$, $p < .001$; positive affect was significantly positively associated at all time points (range in r from .31 to .48). For within-time correlations with women's relationship satisfaction, IPV was significantly negatively associated at all time points (range in r from $-.29$ to $-.40$); externalizing negative affect was significantly negatively associated at all time points (range in r from $-.42$ to $-.48$); internalizing negative affect was significantly negatively associated at T1, $r = -.38$, $p < .001$, and T3, $r = -.40$, $p < .001$.

Relationship Satisfaction, Baseline Model

In the linear model of relationship satisfaction, growth was modeled with a slope and intercept, both of which were allowed to vary across couples. The average linear/slope term for both partners was found to be nonsignificant, indicating that couples overall did not increase or decrease in their relationship satisfaction. However, significant variability around the means

remained, justifying examination of Level 1 and Level 2 predictors of variation in relationship satisfaction. Furthermore, a deviance test indicated that removing the linear slope terms from the model would result in a significantly worse fit, χ^2 (9) = 36.08, p < .001. Within couples, partners' intercepts and slopes were highly associated (r = .81 for intercepts, r = .94 for slopes), supporting the need for a model that takes dependent data into account. Planned contrasts of the coefficients demonstrated that the women's average intercept (representing her relationship satisfaction in the middle of the time period or at T2) was significantly higher than the men's average intercept, χ^2 (2) = 7644.96, p < .001. Men's and women's average slope terms, 1.08 and 1.64 respectively, were not significantly different from each other, χ^2 (2) = 3.02, ns.

Time-Varying Predictors, Baseline Models

Unconditional models of affect and IPV over time were also run to obtain descriptive information about the time-varying predictors during the same time period. The significant negative slopes indicated that couples, overall, declined in IPV, externalizing, and internalizing negative affect over time. There was also significant variability around the means for these trajectories. The average slope for positive affect was not significant, and the significant variability around the means suggested that some couples could be increasing with other couples decreasing in positive affect over time.

Contextual Factors and Missing Data

Before adding predictors of interest, a set of possible between-couple contextual factors were entered at Level 2 of the models. These variables included average reported length of relationship, the presence of biological or step children in the household, and relationship status (dating, living together, or married). Relationship status (in the sense of a more committed relationship such as marriage) significantly predicted higher relationship satisfaction intercepts, and children in the household significantly predicted lower intercepts for both men and women. Length of relationship was not predictive. Relationship status and children in the household were included as contextual factors in all subsequent analyses. None of the missingness terms (main effects or interactions) were significant in the final step of the following models; therefore, final model effects are discussed without further reference to missing data.

IPV and Observed Positive Affect (Table 2)

In the full model, IPV, dyadic affect, and their interactions were entered as predictors at both Levels 1 and 2. The final model retained significant effects of couples' IPV and affect at both levels. At the between-couple level (Level 2), couples' mean positive affect significantly predicted the men's and women's intercepts of relationship satisfaction. Couples with high levels of positive affect also had high levels of satisfaction in their relationships. A significant within-couple (Level 1) association for men further revealed that increases in couples' positive affect were associated with increases in men's satisfaction. The comparable Level 1 association for women was not significant, but important for model fit, and would have caused a significant change in deviance statistic if removed from the final model.

A significant Level 2 effect for couples' IPV suggested that women in more physically aggressive relationships were less satisfied in their relationships than women in less physically aggressive relationships. The interaction of couples' positive affect and IPV was not significantly associated with relationship satisfaction at Level 1 or 2 for men and women. The Level 1 association between fluctuations in couples' IPV and women's relationship satisfaction over time did not attain significance but was found important for model fit. A deviance test demonstrated that the final model was a significant improvement in fit over the baseline model, χ^2 (10) = 933.16, p < .001, and the decrement in fit compared with the full version of the model was nonsignificant, χ^2 (12) = 14.71, ns. This final model explained 30.22% of the variance in

men's intercepts and 14.08% of the variance in their slopes, and 35.77% of the variance in women's intercepts and 5.01% of the variance in their slopes.

IPV and Observed Externalizing Negative Affect (Table 3)

A significant Level 2 effect of couples' mean externalizing negative affect on men's and women's intercepts of relationship satisfaction was found. In addition, the interaction effect of externalizing negative affect and IPV was significant at Level 2 for men and women . An examination of the interaction effect by splitting the sample into low and high levels of externalizing negative affect is illustrated in Figure 1 for women and men. At high levels of externalizing negative affect, there was a weak association between IPV and relationship satisfaction, whereas at low levels of externalizing negative affect, there was a strong association between IPV and relationship satisfaction.

At Level 1, increases in couples' externalizing negative affect related to decreases in men's satisfaction over time. The within-couple effect of externalizing negative affect by IPV on women's satisfaction proved important for overall model fit but did not attain significance. This final model explained 32.95% of the variance in men's and 47.72% of the variance in women's intercepts, and 12.95% of the variance in men's and 11.27% of the variance in women's slopes. It showed improved fit compared with baseline, $\chi^2 (14) = 941.98$, $p < .001$, and nonsignificantly worse fit compared with the full model, $\chi^2 (8) = 8.7$, *ns*.

IPV and Observed Internalizing Negative Affect (Table 4)

Couples' mean internalizing negative affect did not reach significance as a Level 2 predictor, though its effect on women's satisfaction intercepts proved important for model fit. Similar to other models, couples' mean IPV predicted lower women's satisfaction intercepts. The Level 1 association between fluctuations in couples' internalizing negative affect and women's relationship satisfaction over time was significant at $p = .06$. The interaction of couples' internalizing negative affect and IPV was significantly associated with relationship satisfaction at Level 1 for men and women. Increases in the couple's IPV were most detrimental for men's and women's satisfaction for couples that also had increases in internalizing negative affect over time (see Figure 2 for the effect on women's and men's satisfaction). Couples' internalizing negative affect amplified the negative effects of the couples' IPV on their satisfaction. This final model was a significantly better fit to the data compared with baseline, $\chi^2 (12) = 904.62$, $p < .001$, and a nonsignificantly worse fit compared with the full model, $\chi^2 (10) = 15.57$, *ns*. This model explained 2.70% of the variance in men's and 22.89% of the variance in women's intercepts, and 16.53% of the variance in men's and 20.62% of the variance in women's slopes.

Discussion

This study examined the association between IPV, observed negative and positive affect during couples' interactions, and relationship satisfaction over approximately a 5-year period in a sample of young adults. The study was unusual in examining the role of internalizing negative affect and positive affect, as well as that of the more commonly examined role of externalizing negative affect.

Consistent with previous research (e.g., Testa & Leonard, 2001), average levels of dyadic IPV was predictive of decreasing relationship satisfaction over time for women, though not for men. Externalizing and internalizing negative affect moderated the impact of IPV on relationship satisfaction in divergent ways. As predicted, increases in IPV were associated with declines in satisfaction for both men and women in couples with high levels of internalizing negative

affect, such as sadness, tension, and listener withdrawal, although internalizing affect was not predictive on its own.

On the other hand, although couples' externalizing negative affect was harmful for both partners' satisfaction, higher levels of IPV predicted lower levels of satisfaction only in couples who displayed low levels of externalizing negative affect. It seems, therefore, that the salience of IPV may have been greater in couples whose relationship satisfaction was not already impaired by high levels of contempt, belligerence, and defensiveness. These findings are consistent with what Rauer et al. (2008) have described as a saturated model--which is one in which additional risk factors have less impact as the accumulated number of risks increases-- and highlight the importance of examining the effects of IPV on relationship quality within the context of other risk factors of couples' experience.

Notably, there was no evidence that couple's positive affect moderated the effects of IPV on relationship satisfaction, though high levels of couples' positive affect (e.g., interest, validation, and humor) contributed to couples' relationship satisfaction. It seems, therefore, that the presence of positive processes can help us understand how relationships can be satisfying and sustainable to partners even in the presence of IPV (Bradbury & Karney, 2004). A unique contribution of the current study was the time-varying measures of affect along with IPV and relationship satisfaction. Couples' externalizing and internalizing negative affect in conjunction with IPV appear to have different implications for relationship quality.

There are a number of limitations in the study that can point to directions for future research: (a) It was difficult to identify a sizeable number of intact couples. The strategy of including couples who had participated together in two or more assessments that were an average of 2 years apart resulted in a sample of couples that ranged in length of relationships from 2 years to over 5 years. Though length of relationship was not predictive of relationship satisfaction intercepts or slopes, it will, nevertheless, be important to replicate these findings for couples who have been in relationships of longer durations. (b) The sample was largely of low socioeconomic status. Though this provides a rare opportunity to study the longitudinal course of romantic relationships amongst lower income adults, findings may not generalize to couples from more advantaged backgrounds. In addition, the sample was predominantly European American. Replication in groups from other cultural backgrounds would further the understanding of observed affect in the association between IPV and relationship satisfaction. (c) It should be noted that because the affect variables were associated with both IPV and relationship satisfaction, the results we report should not be considered indicative of pure moderation (MacKinnon, 2008). The results could, therefore, also be conceptualized to reflect the moderation of the association between negative affect and relationship satisfaction by IPV. (d) Differences in findings for men and women, such as that men's relationship satisfaction was sensitive to fluctuations in couples' affect but women's satisfaction was not (cf., Lawrence & Bradbury, 2007), indicate that the role of gender in these associations warrants further attention and testing for gender difference that we were not able to investigate in the HLM analyses.

Another indicated direction for future research is to examine partner characteristics, such as the ability to regulate emotions, that may play a role in the associations found. Thus far, the role of self-regulatory processes in relation to engagement in IPV has been understudied (e.g., Finkel, 2007). Consideration of other risk factors could build on the findings in the current study. For example, chronic stress has been identified as a risk factor for low marital satisfaction, with higher levels associated with lower marital satisfaction over time for newlywed couples (Karney, Story, & Bradbury, 2005). For couples with IPV, the association between IPV and marital satisfaction was much stronger for wives with high chronic stress than wives with low chronic stress (Frye & Karney, 2006).

In conclusion, relationship satisfaction for young, at-risk couples was influenced by the couples' IPV, negative affect, and positive affect. The findings of this study substantiate the function of couples' positive affect in enhancing relationship quality and couples' IPV and negative affect in increasing risk for relationship distress. Furthermore, the interdependence of IPV and negative affective processes suggests the importance of considering multiple risk factors in understanding relationship quality for couples that experience IPV. Given the co-occurrence and interdependence of negative relationship processes, intervention and treatment aimed at strengthening couples' relationships may be effective by focusing on more than one risk factor (Rauer et al., 2008), particularly by reducing the damaging effects on relationships of negative affect and IPV. Furthermore, simultaneous promotion of positive relationship processes is indicated (Bradbury, Rogge, & Lawrence, 2001).

Acknowledgments

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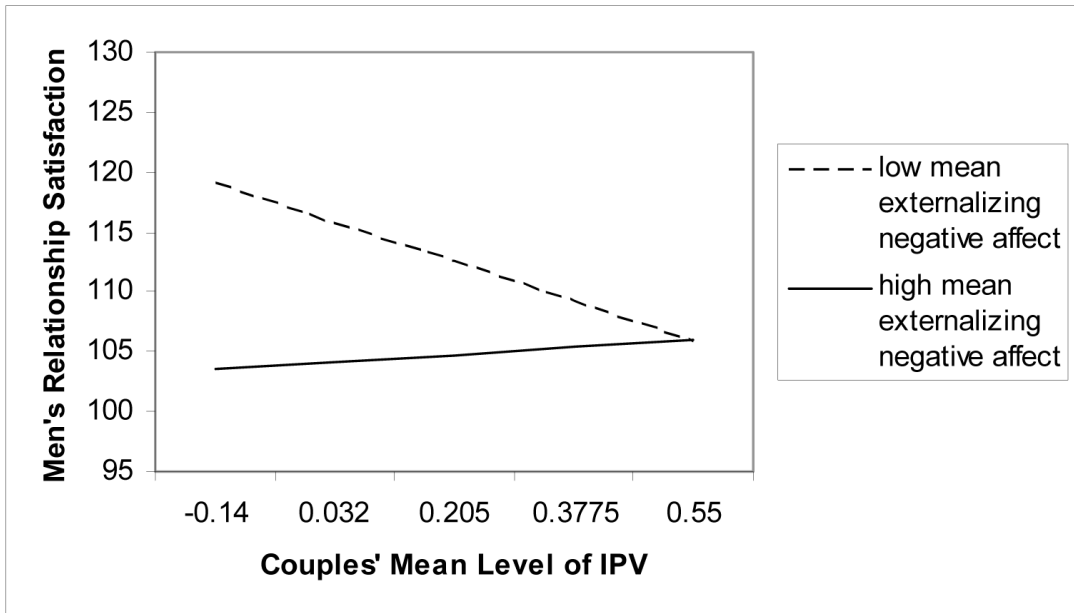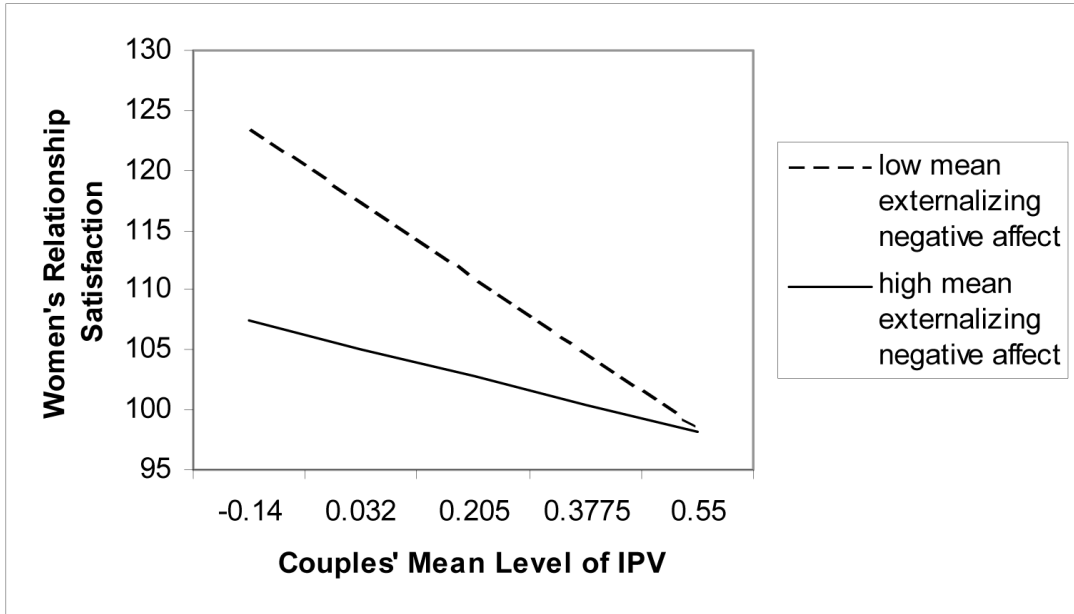
Figure 1.
Couples' mean observed externalizing negative affect interacts with their mean IPV to predict relationship satisfaction at T2 shown for women and men.
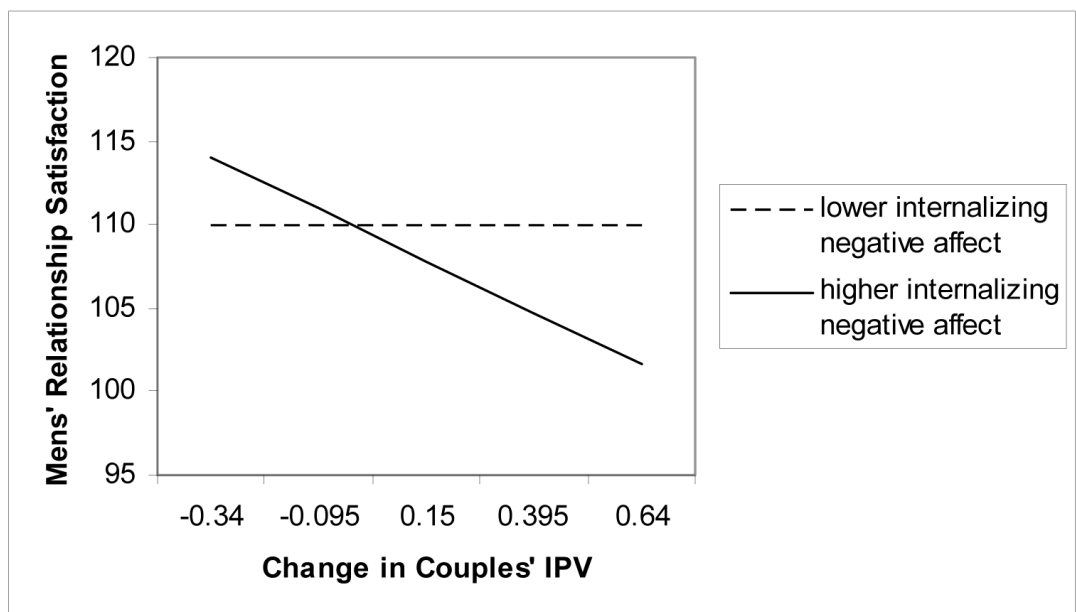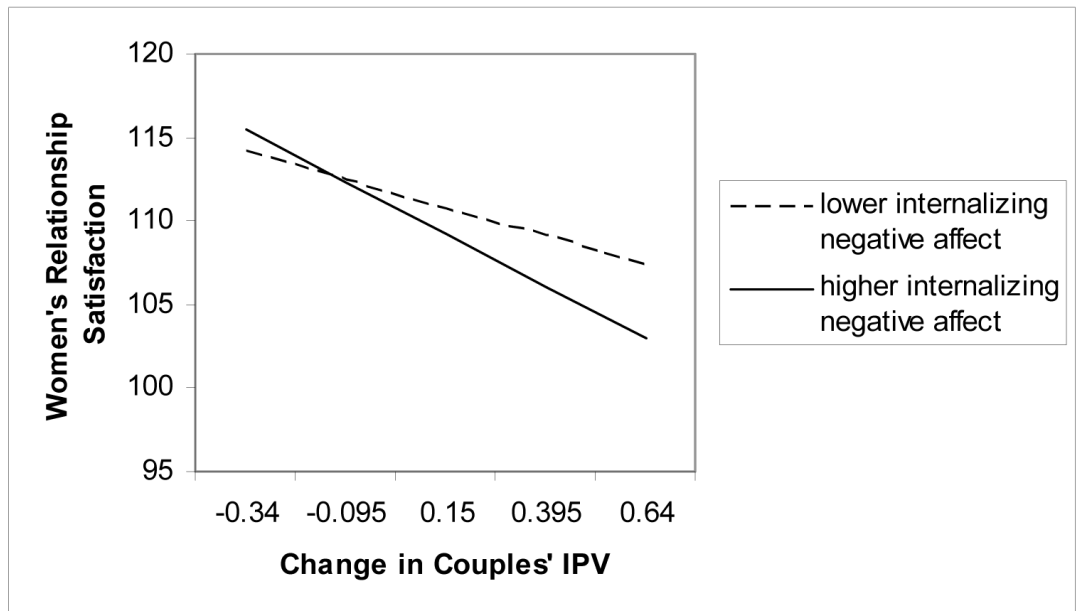*Note*. IPV is represented by standardized scores.

Figure 2.
Change in couples' observed internalizing negative affect interacts with change in IPV to predict relationship satisfaction over time shown for women and men.
Note. Change is represented by mean change in the IPV standardized scores from one time point to another.

Table 1

Means and Standard Deviations for Relationship Satisfaction and Time-Varying Predictors

Variable	Time 1	Time 2	Time 3
	M SD	**M SD**	**M SD**
Relationship satisfaction			
Women	111.15 (14.53)	109.24 (18.69)	111.58 (18.86)
Men	110.20 (19.35)	107.58 (19.43)	109.21 (19.04)
Time-varying dyadic predictors			
IPV	.20 (.24)	.12 (.15)	.11 (.17)
Externalizing negative affect	.13 (.10)	.09 (.08)	.08 (.07)
Internalizing negative affect	.03 (.05)	.01 (.02)	.01 (.01)
Positive affect	.10 (.06)	.09 (.05)	.10 (.05)
Total *N*	81	119	102

Table 2

Final Model for Couples' IPV and Observed Positive Affect

Predictor	Coefficient	SE	t, df	p
Women's Satisfaction				
Level 1 Effects (Within-Couple)				
IPV	−9.26	5.18	−1.79, 530	.07
Positive Affect	23.33	19.65	1.19, 530	.24
Level 2 Effects (Between-Couple)				
Intercept (DAS at T2)				
Mean IPV	−24.97	6.09	−4.10, 107	< .001
Mean Positive Affect	162.23	25.63	6.33, 107	< .001
Slope (T1-T3 DAS)				
Men's Satisfaction				
Level 1 Effects (Within-Couple)				
Positive Affect	47.04	19.02	2.47, 530	.01
Level 2 Effects (Between-Couple)				
Intercept (DAS at T2)				
Mean Positive Affect	178.47	30.95	5.77, 108	< .001
Slope (T1-T3 DAS)				

Table 3

Final Model for Couples' IPV and Observed Externalizing Negative Affect

Predictor	Coefficient	SE	t, df	p
Women's Satisfaction				
Level 1 Effects (Within-Couple)				
IPV	−9.30	5.97	−1.56, 526	.12
Ext. Neg. Affect	−25.86	16.87	−1.53, 526	.13
IPV × Ext. Neg. Affect	163.36	91.52	1.78, 526	.07
Level 2 Effects (Between-Couple)				
Intercept (DAS at T2)				
Mean IPV	−22.24	11.43	−1.95, 106	.05
Mean Ext. Neg. Affect	−116.82	17.68	−6.61, 106	<.001
Mean IPV × Ext. Neg. Affect	209.43	63.88	3.28, 106	.002
Slope (T1-T3 DAS)				
Men's Satisfaction				
Level 1 Effects (Within-Couple)				
Ext. Neg. Affect	−34.83	16.87	−2.07, 526	.04
Level 2 Effects (Between-Couple)				
Intercept (DAS at T2)				
Mean IPV	−5.27	14.82	−0.36, 106	.72
Mean Ext. Neg. Affect	−112.63	21.92	−5.14, 106	<.001
Mean IPV × Ext. Neg. Affect	205.88	89.85	2.29, 106	.02
Slope (T1-T3 DAS)				

Table 4

Final Model for Couples' IPV and Observed Internalizing Negative Affect

Predictor	Coefficient	SE	t, df	P
Women's Satisfaction				
Level 1 Effects (Within-Couple)				
IPV	−10.06	5.87	−1.71, 528	.09
Int. Neg. Affect	−44.43	24.01	−1.85, 528	.06
IPV × Int. Neg. Affect	−384.73	155.46	−2.48, 528	.01
Level 2 Effects (Between-Couple)				
Intercept (DAS at T2)				
Mean IPV	−26.74	5.92	−4.52, 107	< .001
Mean Int. Neg. Affect	−85.04	53.69	−1.58, 107	.12
Slope (T1-T3 DAS)				
Men's Satisfaction				
Level 1 Effects (Within-Couple)				
IPV	−6.70	4.48	−1.50, 528	.14
Int. Neg. Affect	−10.80	25.57	−0.42, 528	.67
IPV × Int. Neg. Affect	−841.79	193.24	−4.36, 528	<.001
Level 2 Effects (Between-Couple)				
Intercept (DAS at T2)				
Slope (T1-T3 DAS)				