Title

Adverse childhood experiences, stress, and intimate partner violence among newlywed couples living with low incomes.

Journal

Journal of Family Psychology, 34(4)

ISSN

0893-3200

Authors

Hammett, Julia F
Karney, Benjamin R
Bradbury, Thomas N

Publication Date

2020-06-01

DOI

10.1037/fam0000629

Peer reviewed

HHS Public Access

Author manuscript

J Fam Psychol. Author manuscript; available in PMC 2021 June 01.

Published in final edited form as:

J Fam Psychol. 2020 June ; 34(4): 436–447. doi:10.1037/fam0000629.

Adverse Childhood Experiences, Stress, and Intimate Partner Violence among Newlywed Couples Living with Low Incomes

Julia F. Hammett, **Benjamin R. Karney**, **Thomas N. Bradbury**

University of California, Los Angeles

Abstract

The stress-generation model, commonly applied in studies of psychopathology, purports that vulnerabilities to depression (e.g., rumination, doubt, self-blame, social withdrawal) increase the likelihood that stressful events will later occur, thus activating depressive vulnerabilities and worsening the course of depression. We adapt this model to examine whether adversities experienced early in life serve to channel individuals into stressful circumstances that then evoke situational Intimate Partner Violence (IPV) in adulthood. Cross-sectional self-report data on early adversity, stress, and IPV from 231 ethnically diverse newlywed couples living in low-income communities were analyzed with Structural Equation Modeling (SEM). Replicating prior research, reports of early adversity and current life stress covaried reliably with IPV, for husbands and wives. Among husbands, early adversity was linked to IPV via stress, whereas for wives, no such mediation emerged. Results remained robust against alternative models (e.g., controlling for relationship satisfaction, substituting relationship satisfaction for IPV, examining the interaction between adversity and stress as a predictor of IPV). These findings indicate that the situations that are a defining feature of situational IPV may themselves be a reflection of the adversities that men face early in life; in the absence of these stressors, the association between early adversity and later IPV falls to non-significance. Assisting men raised in risky environments to appreciate the effects of stress on their interpersonal exchanges in marriage could reduce rates of IPV.

Keywords

Adverse Childhood Experiences; Intimate Partner Violence; Newlyweds; Stress

The interdependence that characterizes intimate relationships serves to promote partners' emotional health and well-being, but also brings with it the possibility of hostility, abuse, and violence. Affecting millions of Americans each year (Breiding, 2015), Intimate Partner Violence (IPV) is associated with poor mental and physical health (Coker et al., 2002) and relationship distress and family disruption (Stith, Green, Smith, & Ward, 2008), imposing a profound burden upon society in general (e.g., Max, Rice, Finkelstein, Bardwell, & Leadbetter, 2004). Prevention and reduction of couples' hostile acts, through identification of risk and protective factors, are high priorities for researchers and policy makers alike. The

Correspondence concerning this article should be addressed to Julia F. Hammett, Department of Psychology, University of California, Los Angeles, 1285 Franz Hall, Box 951563, Los Angeles, CA 90095-1563. juliafhammett@gmail.com.
Julia F. Hammett, Benjamin R. Karney, and Thomas N. Bradbury, Department of Psychology, University of California, Los Angeles.

present study aims to advance this agenda by examining whether adversity experienced during childhood predicts situational couple violence in newlywed marriages and, more critically, whether these early experiences of adversity foreshadow the stressful life circumstances that make IPV more likely.

Adverse Childhood Experiences (ACE) have been identified as a long-range predictor of a variety of negative physical and mental health outcomes (for a recent meta-analytic review, see Hughes et al., 2017). IPV is among these negative outcomes (e.g., Capaldi, Knoble, Shortt, & Kim, 2012). To the extent that children are exposed to abuse, neglect, or inter-parental violence, their likelihood of being in an aggressive or hostile relationship also increases, with meta-analyses estimating an effect size of $r = .30$ linking family adversity during childhood with IPV in adulthood (Stith et al., 2000). While there is now little doubt that early adversity increases emotionally dysregulated interpersonal exchanges later in life, the majority of people who are exposed to early adversity will not grow up to participate in aggressive relationships in adulthood (e.g., Heyman & Slep, 2002). One possible explanation for this disjunction is that early adversity must recruit or incur other forms of adversity in order for aggression to emerge later in life; thus, early adversity may lead to later secondary forms of adversity, which in turn make later aggression more likely. This explanation is in line with the more general concept of stress generation, which is familiar in the literature on psychopathology. Where it was once held that stress was a principle cause of depression, for example, depression and vulnerabilities to depression (e.g., rumination, doubt, self-blame, social withdrawal) are now known to increase the likelihood that stressful events will later occur, thus activating depressive vulnerabilities and worsening the course of depression (Hammen, 2005).

In a similar manner, recent theoretical approaches aimed at understanding violence towards intimate partners propose that behavior in couples can be conceptualized as “a dynamic developmental system in which behavior in the dyad is inherently interactive and also responsive to developmental characteristics of each of the partners and to both broader and more proximal contextual factors” (Capaldi & Kim, 2007, p. 7). The Dynamic Developmental Systems Model thus emphasizes not only characteristics that partners bring into the relationship but also the current risk context and contextual factors that affect aggression toward a partner. In line with this approach, we suggest that violence and adversity may be bidirectionally associated, contributing to the recurrence and chronicity of violence and continuing stressors. Specifically, we propose that individuals exposed to family adversity during childhood may encounter more stress as they move into adulthood than those exposed to less family adversity, and/or have a decreased ability to manage that stress effectively, thus increasing the likelihood that they will be in circumstances that evoke IPV. This proposition addresses a question that is untested in the literature on situational couple violence: rather than ask what kinds of situations may trigger couple violence, we aim to explain why individuals vary in their exposure to situations that make later IPV more likely. We argue that these risky situations are not random but are themselves an outgrowth of individuals’ earlier adversity, such that vulnerable individuals are confronted with circumstances that challenge or erode their capacity to resolve rapidly escalating relationship disagreements.

As examples of risky situations, we focus not only on individuals' perceptions of general stress but also on their perceptions of financial stress and discrimination. Limited financial strain and experiences of discrimination are salient and severe stressors that have been shown to exert effects on IPV (e.g., Schwaab-Reese, Peek-Asa, & Parker, 2016; Trail, Goff, Bradbury, & Karney, 2012). We propose that individuals with a history of family adversity may be more susceptible to financial hardship and perceptions of financial strain, and more vulnerable to discrimination, as compared to individuals without a history of family adversity. Testing such stress-based mechanisms holds promise, first because it may help to identify a specific subgroup of individuals who are especially prone to IPV, and second because it could help to explain why early adversity is associated with a wide range of outcomes, including PTSD (Swopes, Simonet, Jaffe, Tett, & Davis, 2013) and substance use (Brown et al., 2015). On the other hand, if we discover that stress does not mediate the association between early adversity and IPV, then focus could appropriately turn to intrapersonal and interpersonal mediators more explicitly.

Although we are unaware of any efforts to test stress as a mediator of the robust early adversity to IPV association, evidence has been presented in support of the subsidiary paths. For example, individuals who experience high levels of adversity in childhood are more vulnerable to low educational achievement and economic productivity in adulthood (e.g., Shonkoff et al., 2012) and are more likely to experience their lives as stressful as a consequence (Evans & English, 2002). Stress itself is known to compromise dyadic exchanges in adulthood. Experimental manipulation of stress in a laboratory undermines the quality of support exchanged between partners (Bodenmann et al., 2015), for example, and the likelihood of IPV grows with increases in financial stress (Slep, Foran, Heyman, & Snarr, 2010), parenting stress (Probst et al., 2008), work stress (Jasinski, Asdigian, & Kantor, 1997), and acculturation stress (Caetano, Ramisetty-Mikler, Vaeth, & Harris, 2007). Thus, while the literature appears to support adversity-to-stress and stress-to-IPV links, missing from this literature is formal consideration of whether stress that appears to result from early adversity does in fact covary with IPV. The present study aims to fill this gap.

The Present Study

Aim 1 of the current study is to replicate prior findings showing associations between early adversity (including physical, psychological, and sexual abuse, neglect, and witnessing violence as well as mental illness in one's family of origin) and IPV, and between current stress and IPV. Because little is known about which facets of stress matter the most, we examine multiple aspects, including perceived stress, financial strain, and experiences of discrimination, all of which may be particularly consequential among couples living with low incomes (Trail et al., 2012).

With Aim 2 we expand prior research by examining whether current stress mediates the association between early adversity and IPV. Although theorists have suggested that the intergenerational transmission of violence may operate differently for men and women, evidence for gender differences has been inconsistent. Generally, growing up in a violent home has been found to relate more strongly to IPV perpetration for male as compared to female offspring, suggesting that men are socialized to be aggressive and to use violence to

settle disputes (Stith et al., 2000). However, not all studies find this effect (e.g., Cappell & Heiner, 1990). Similarly, various dimensions of stress have been found to relate more consistently to men's IPV as compared to women's IPV (e.g., discrimination, Trail et al., 2012; financial strain, Ulibarri et al., 2019). This difference might arise as a result of expectations that men will be the primary or sole breadwinner, potentially leading to increased strain when this expectation goes unmet (e.g., because of poor job prospects), increasing the likelihood of IPV perpetration in turn. However, again, other work fails to find such gender differences (e.g., Capaldi et al., 2012). In view of contradictory evidence regarding the etiology of IPV for men and women, we take no specific stand on this issue but instead examine effects of early adversity and current stress on couple IPV separately for husbands and wives, and we test for differences in the strength of husbands' and wives' effects.

In Aim 3, we examine the robustness of the early adversity-to-stress-to-IPV mediation model proposed in Aim 2 by testing three alternative models. First, given the importance of relationship satisfaction in determining a variety of dyadic outcomes, including IPV (e.g., Stith et al., 2008), we examine the mediational pathway from early adversity to stress to IPV while controlling for satisfaction. Second, to test whether mediational effects of early adversity to stress to negative outcomes would extend to outcomes besides IPV, we examine mediational pathways from early adversity to current stress to relationship satisfaction. Third, we test whether the combination of early and current life stress and trauma may be multiplicatively problematic, in that current stress may moderate – rather than mediate – the association between early adversity and IPV.

We situate our study within the population of first-time newlywed couples living with low incomes, for several reasons. First, IPV and its many correlates tend to be overrepresented among economically disadvantaged, minority group couples (Capaldi et al., 2012) and, despite their high rates of relationship distress and dissolution, these couples remain understudied (Manning, Brown, Payne, & Wu, 2014). We chose to focus on newlywed couples, as they are undergoing a major transition in their lives, one often marked by significant changes in work, finances, personal identities, household composition, and family development (e.g., Neff & Karney, 2005). Because newlyweds' behaviors and changes in their union at the onset of marriage can foreshadow their long-term fate (Huston, Caughlin, Houts, Smith, & George, 2001; Karney & Bradbury, 1995, 1997), studying the effects of family adversity during childhood on IPV at this stage may shed light on how couples navigate the early transition to committed partnerships. Finally, younger individuals are more likely to engage in violent behavior, such as IPV, and pre-marital IPV is predictive of later relationship dysfunction (Lawrence & Bradbury, 2001), providing further support for sampling from a newlywed population.

Method

Sampling

Sampling was undertaken to yield newlywed different-sex couples in which partners were living in high-poverty neighborhoods in Harris County, Texas, the third most populous county in the United States and a region with a large and diverse population. Recently

married couples were identified through names and addresses on marriage license applications. License records were obtained from the Harris County Recorder's Office between 2014 and 2015. Addresses were matched with census data to identify applicants living in high-poverty communities, defined as census block groups for which no less than 30% of the households were categorized by the census as living below poverty, thereby oversampling an understudied and rarer population of couples living in high-poverty neighborhoods. These couples were screened on the telephone or in person to ensure that they were married, neither partner had been previously married, and were not same-sex partners. A total of 4,916 couples were identified through addresses listed on their marriage licenses. Among the couples contacted, 3,535 could not be reached and 1,157 agreed to be screened for eligibility. Of those, 506 couples were screened as eligible (i.e., they were married, neither partner had been previously married, and partners were of the same sex), and 401 of them agreed to participate in the study, with 231 couples actually participating before the close of the study window. The time window for assessment was March 2015 to March 2016.

Participants and Procedure

The sample was comprised of 231 couples in their first marriages identified with the above procedures. Husbands ranged in age from 18 to 53 years ($M = 29.51$, $SD = 7.46$) and wives ranged in age from 18 to 56 years ($M = 28.07$, $SD = 7.41$). Fifty-two percent of husbands and 53% of wives were Hispanic. Of the remaining participants, husbands and wives were either Black (32% and 35%, respectively), White (10% and 9%), or Other/Multiracial (6% and 3%). Average relationship length was 4.7 years. Approximately 60% of couples had children, and household income averaged $40,885 (SD = $29,146). The majority of husbands (60%) and wives (54%) had less than/equal to a high school diploma / GED. Couples were visited in their homes by two interviewers who took spouses to separate areas to obtain informed consent and to orally administer self-report measures. Couples were compensated $100 ($50 per partner) for their participation in the study. The RAND Corporation Institutional Review Board approved all procedures.

Measures

Adverse Childhood Experiences (ACE).—Mirroring the ACE Study (Felitti et al., 2019), husbands' and wives' ACE were measured with eight items assessing direct physical, psychological, and sexual abuse [including a parent or adult in the household (1) swearing insulting, putting down, or humiliating; (2) inducing fear of being physically hurt; (3) pushing, grabbing, slapping; (4) hitting so hard that it left marks; and (5) trying or succeeding in doing something sexual; as well as (6) not feeling loved; (7) feeling that the family did not look out for each other; and (8) feeling that there was not enough to eat, having to wear dirty clothes, and having no one for protection]; three items assessing observed violence in one's family of origin [including (9) witnessing someone in the family being pushed, grabbed, or slapped; (10) witnessing someone in the family being kicked, bitten, hit with a fist, or hit with something hard; and (11) witnessing someone in the family being beaten up or threatened with a gun or knife]; and three additional items assessing (12) substance use, (13) mental illness such as depression or suicidality, and (14) incarceration in one's family of origin. Items elicited a binary response (0 = no, 1 = yes). The 14 observed

ACE items were used as indicators of husband and wife ACE latent variables, respectively. Coefficient alpha was 0.83 for husbands and 0.86 for wives.

Financial strain.—Using items from the Welfare, Children, and Families: Three-City Study questionnaire (Angel, Burton, Chase-Lansdale, Cherlin, & Moffitt, 2012) husbands' and wives' financial strain were measured with five items assessing the degree of difficulty the couple had fulfilling financial obligations and purchasing necessary items (e.g., "How much difficulty did your household have paying bills?"). Items were scored on a 4-point scale (1 = no difficulty at all or never, 2 = a little difficulty or rarely, 3 = some difficulty or sometimes, 4 = a great deal of difficulty or often). The five observed financial strain items were used as indicators of husband and wife financial strain latent variables, respectively. Coefficient alpha was 0.73 for husbands and 0.79 for wives.

Experiences of discrimination.—Using items from the MacArthur Foundation Midlife Development in the United States survey (MIDUS; Kessler, Mickelson, & Williams, 1999), husbands' and wives' experiences of discrimination were measured with six items assessing the degree of discrimination partners experienced for any reason on a day-to-day basis (e.g., "Do people act as if you are inferior?"). Items were scored on a 4-point scale (0 = never, 1 = rarely, 2 = sometimes, 3 = often). The six observed discrimination items were used as indicators of husband and wife experiences of discrimination latent variables, respectively. Coefficient alpha was 0.79 for husbands and 0.76 for wives.

Perceived stress.—Using an adapted version of the Life Stress Interview (LSI; Hammen, 1991), husband and wife perceived stress was measured with twelve items assessing partners' perceptions of the stressfulness of a number of situations (e.g., participants' living situation, financial status) during the past nine months. Items were scored on a 3-point scale (0 = not at all stressful, 1 = somewhat stressful, 2 = extremely stressful). The twelve observed perceived stress items were used as indicators of husband and wife perceived stress latent variables. Coefficient alpha was 0.80 for husbands and 0.71 for wives.

Intimate partner violence.—Couples' IPV was assessed using an adapted version of the revised Conflict Tactics Scales (CTS-R; Straus & Douglas, 2004), asking each partner to report on seven acts of perpetration (e.g., "Did you ever …?") and on seven corresponding acts of victimization (e.g., "Did your partner ever …?") during the past nine months (the current data were drawn from a larger study with multiple assessments at nine-month intervals). The seven acts assessed included (1) insulting or swearing, (2) stomping out of the room, or leaving the house during an argument, (3) threatening to hit, (4) throwing something, (5) pushing, grabbing, or shoving, (6) slapping, hitting, biting, or punching, and (7) beating up. For each item, participants were asked if they had engaged in the act described (i.e., perpetration) and if their spouse had engaged in the act described (i.e., victimization). If they responded positively to the item, participants were asked to indicate the number of times each event had occurred, with the response options being 1 (Once or twice), 2 (Several times), and 3 (Often). Due to the small number of psychological and physical IPV items, all items were combined into one measure.

Previous research (e.g., Copp, Giordano, Manning, & Longmore, 2016) indicates that situational IPV among community couples may be more appropriately captured through the use of a measure tapping "any" reports of relationship violence versus separate measures of perpetration or victimization. Therefore, in line with these recommendations and because of the high correlations between husbands and wives' perpetration and victimization scores (all *p*s < .001), husbands and wives' self-reports of perpetration and victimization were combined into one overall couple-level measure of IPV. Specifically, we calculated a couple IPV latent variable, indicated by four summed scores for husband perpetration, husband victimization, wife perpetration, and wife victimization. Statistical evidence in the current sample further supported this decision, showing that a large majority of respondents in our sample (70.6%) reported mutual violence, thus preventing a nuanced analysis of various forms of violence. Furthermore, there was a high correlation of male-to-female and female-to-male IPV ($r = .74$, $p < .001$). Coefficient for the individual summed scores for husband and wife perpetration and husband and wife victimization were 0.67, 0.73, 0.75, and 0.59, respectively. Coefficient alpha for the combined index of 28 items was 0.88.

Relationship satisfaction.—Husband and wife relationship satisfaction, conceptualized as spouses' global sentiment towards the relationship, was an adapted measure using ten items from the Couple Satisfaction Index (CSI-16; Funk & Rogge, 2007), with higher scores indicating higher levels of satisfaction. The items assessed global satisfaction (e.g., "My relationship with my partner makes me happy") and were rated on a 6-point scale. The ten observed relationship satisfaction items were used as indicators of husband and wife relationship satisfaction latent variables, respectively. Coefficient alpha was 0.91 for husbands and 0.94 for wives.

Analytic Plan

Structural equation modeling (SEM) analyses were conducted in Mplus Version 8 with Maximum Likelihood Robust (MLR) as the estimator. MLR accommodates for non-normal distribution of the data and for missing data (i.e., all models were estimated using all $N = 231$ observations). Partners in intimate relationships do not operate independently of one another. Rather, their behaviors and perceptions tend to be inter-related. For example, if a husband experiences high levels of stress, the likelihood that his wife will also feel stressed is higher. Similarly, partners may select themselves into relationships based on similarity in certain historical variables, so that, for example, a woman with a history of family adversity is drawn to a partner with similar background. In order to statistically account for the effects that a partner has on an individual's outcome, Kenny, Kashy, and Cook (2006) proposed dyadic approaches using the couple as the unit of analysis, rather than the individual. Following this approach, in the present study, husband and wife variables were allowed to correlate in all models, thereby accounting for the non-independence of partners' data.

To determine overall model fit, we assessed the root mean square error of approximation (RMSEA), an absolute index of overall model fit with values less than .08 indicative acceptable model fit (Steiger, 1990), and the Standardized Root Mean Residual (SRMR), an absolute index of overall model fit with values less than .08 indicative acceptable model fit (Hu & Bentler, 1999). To determine whether mediation effects were statistically significant,

we calculated confidence intervals for indirect effects using unstandardized regression coefficients (see Soper, 2018). A mediated effect is supported if the 95% confidence interval does not contain 0, which would suggest that ACE influences the trajectory of the mediator (financial strain, experiences of discrimination, or perceived stress), which, in turn, is associated with couple IPV.

Results

Descriptive Statistics

As can be seen in Table 1, husbands and wives reported about three ACE. With regards to adult stress, husbands reported slightly lower levels of perceived stress compared to wives, but reported similar levels of financial strain and discrimination. Descriptive statistics derived from the four summed scores that served as indicators for the couple IPV latent variable showed that husbands self-reported lower levels of IPV perpetration than wives and reported higher levels of IPV victimization than wives. These results are in line with previous findings about IPV frequencies among community couples. As would be expected among a sample of newlywed couples, levels of relationship satisfaction were relatively high for husbands and for wives. We report means, standard deviations, and mean comparisons (t-values) based on descriptive statistics of summed scores in the table.

Bivariate correlations among study variables are shown in Table 1. Consistent with predictions, husbands and wife ACE were significantly associated with husband and wife current stress (with the exception of wives' ACE and their financial strain, $r = .09$, *ns*) and couple IPV such that individuals reporting more ACE also reported more financial strain, experiences of discrimination, perceived stress, and couple IPV. In addition, current stress was significantly associated with IPV in that more husband and wife financial strain, experiences of discrimination, and perceived stress were associated with more couple IPV.

Aim 1: Associations Among ACE, Stress, and IPV

To replicate and extend prior findings linking adverse experiences during childhood and current stress in adulthood, to IPV in adulthood, we tested four separate structural equation models with direct paths from husband and wife ACE (Model 1), husband and wife financial strain (Model 1a), experiences of discrimination (Model 1b), and perceived stress (Model 1c) to couple IPV. These analyses were distinct from the correlational analyses described above as husband and wife predictors were included in the same model and were allowed to correlate, thereby controlling for a given husband's predictor when assessing the effect of the wife's predictor on couple IPV and vice versa. All predictors were significantly related to couple IPV ß = .25 and .26 for husband and wife ACE; ß = .45 for husband financial strain, ß = .32 for husband discrimination, ßs = .34 and .23 for husband and wife perceived stress, all *p*s < .05), except for wives' financial strain (ß = −.16, *ns*) and wives' experiences of discrimination (ß = .13, *ns*), thereby providing a strong set-up for the mediational models examined below. Wald tests comparing the strength of the effects of husbands' and wives' stressors on IPV indicated that husbands' financial strain was more strongly related to couple IPV than wives' financial strain (Wald = 5.58, $p = .02$). All other husband and wife

effects were of similar strength. For values of all standardized coefficients, standard errors, indirect effects and CIs, and overall model fit indices, see Table 2.

Aim 2: Mediation Analyses from ACE to Stress to IPV

For Aims 2 and 3, we used the Holm alpha correction method (Holm, 1979) to account for multiple comparisons (i.e., 3 paths for the husband mediation and 3 paths for the wife mediation).

Addressing Aim 2, we tested three separate structural equation models examining whether the effect of husband and wife ACE to couple IPV would operate through husband and wife financial strain (Model 2a), experiences of discrimination (Model 2b), and perceived stress (Model 2c). For values of all standardized coefficients, standard errors, indirect effects and CIs, and overall model fit indices, see Table 3. A visual depiction of Model 2a is shown in Figure 1.

Financial strain.—For husbands, results indicated that there was a full mediation: ACE were a significantly related to financial strain ($ß = .19$, $p = .02$) and financial strain was significantly related to couple IPV ($ß = .39$, $p < .01$). ACE were no longer significantly related to couple IPV after controlling for the mediator, financial strain ($ß = .17$, *ns*). The indirect effect was significant ($b = 3.16$, 95% CI = 0.52, 5.81).

For wives, results indicated that there was no mediation: ACE were not significantly related to financial strain ($ß = .05$, *ns*) and financial strain was not significantly related to couple IPV ($ß = -.16$, *ns*). ACE remained significantly related to couple IPV after controlling for the mediator, financial strain ($ß = .25$, $p < .01$). The indirect effect was not significant ($b = -0.32$, 95% CI = −1.84, 1.21). Wald tests indicated that husbands' financial strain was more strongly related to couple IPV than wives' financial strain (Wald = 4.91, $p = .02$). The other two husband and wife effects were of similar strength.

Experiences of discrimination.—For husbands, results indicated that there was a full mediation: ACE were significantly related to discrimination ($ß = .43$, $p < .01$) and discrimination was significantly related to couple IPV ($ß = .23$, $p = .02$). ACE were no longer significantly related to couple IPV after controlling for the mediator, discrimination ($ß = .15$, *ns*). The indirect effect was significant ($b = 4.17$, 95% CI = 1.25, 7.10).

For wives, results indicated that there was no mediation: Although ACE were significantly related to discrimination ($ß = .28$, $p < 0.01$), discrimination was not significantly related to couple IPV ($ß = .07$, *ns*). ACE remained significantly related to couple IPV after controlling for the mediator, discrimination ($β = .21$, $p = .01$). The indirect effect was not significant ($b = 0.87$, 95% CI = −1.47, 3.21). Wald tests indicated that all three effects were of similar strength.

Perceived stress.—For husbands, results indicated that there was a full mediation: ACE were significantly related to perceived stress ($ß = .24$, $p = .02$) and perceived stress was significantly related to couple IPV ($ß = .27$, $p = .02$). ACE were no longer significantly

related to couple IPV after controlling for the mediator, perceived stress (ß = .16, *ns*). The indirect effect was significant (*b* = 2.84, 95% CI = 0.32, 5.35).

For wives, results indicated that there was no mediation: ACE were not significantly related to perceived stress (ß = .22, *ns*), perceived stress was not significantly related to couple IPV (ß = .19, *ns*), and ACE were not significantly related to couple IPV after controlling for the mediator, perceived stress (ß = .15, *ns*). The indirect effect was not significant (*b* = 1.84, 95% CI = −0.43, 4.11). Wald tests comparing effects for husbands and wives indicated that all three effects were of similar strength.

Supplemental, exploratory analyses indicated that when including all mediators (i.e., husband and wife financial strain, discrimination, and perceived stress) simultaneously in one model, the only mediation effect that remains statistically significant is the effect routed through husbands' financial strain (*b* = 2.74, 95% CI = 0.18, 5.30).

Aim 3.1: Mediation Analyses from ACE to Stress to IPV Controlling for Satisfaction

Next, we examined whether the pattern of results from Models 2a – 2c would remain after controlling for relationship satisfaction. Therefore, in Models 3.1a – 3.1c, we added husbands and wives' satisfaction scores to the three separate structural equation models described above. Results of Models 3.1a and 3.1c were consistent with Models 2a and 2c, indicating that for husbands, the association between ACE and partner aggression was mediated by financial strain and perceived stress, respectively, whereas for wives, no support for mediational pathways was found. For Model 3.1b, we found support for neither husbands nor wives' experiences of discrimination in mediating the association between ACE and partner aggression. Wald tests comparing husbands' and wives' effects indicated that husbands' financial strain was more strongly related to couple IPV than wives' financial strain (Wald = 5.37, *p* = .02). All other husband and wife effects in the three models were of similar strength. For values of all standardized coefficients, standard errors, indirect effects and CIs, and overall model fit indices, see Table 3.

Aim 3.2: Mediation Analyses from ACE to Stress to Satisfaction

To test whether ACE and stress would also covary with other relationship outcomes, we first tested a model including husband ACE as a predictor of husband relationship satisfaction and wife ACE as a predictor of wife relationship satisfaction. Husbands who reported more ACE were less satisfied with their relationships (ß = −.17, *p* = .02). For wives, the association between ACE and relationship satisfaction was marginally significant (ß = −.14, *p* = .06). Then, three separate structural equation models examined the effects of husband and wife ACE on husband and wife relationship satisfaction through husband and wife financial strain (Model 3.2a), experiences of discrimination (Model 3.2b), and perceived stress (Model 3.2c). Results did not support the mediation hypothesis: Although husband and wife ACE were significantly positively associated with stress (with the exception of wife financial strain), stress was significantly negatively associated with relationship satisfaction (with the exception of husband experiences of discrimination), and the association between ACE and relationship satisfaction was not significant after controlling for stress, none of the six indirect effects examined were statistically significant. Wald tests comparing husbands'

and wives' effects indicated that all effects across the four models were of similar strength. For values of all standardized coefficients, standard errors, indirect effects and CIs, and overall model fit indices, see Table 3.

Aim 3.3: Moderation Analyses from ACE-by-Stress to IPV

Lastly, we tested alternative models examining whether stress would moderate the association between ACE and IPV. Therefore, we included interactions between husband ACE and husband financial strain and wife ACE and wife financial strain (Model 3.3a), husband ACE and husband experiences of discrimination and wife ACE and wife experiences of discrimination (Models 3.3b), and husband ACE and husband perceived stress and wife ACE and wife perceived stress (Model 3.3c) in our models. None of the six interaction effects examined across the three models were statistically significant, thereby lending no support for a multiplicative effect of ACE and stress on IPV. Wald tests comparing husbands' and wives' effects indicated that husbands' financial strain was more strongly related to couple IPV than wives' financial strain (Wald = 4.70, $p = .03$). The other two husband and wife effects were of similar strength. For values of all standardized coefficients, standard errors, and overall model fit indices, see Table 4.

Discussion

Early family adversity foreshadows a variety of negative consequences, increasing the likelihood of physical and mental health problems and risk-promoting behaviors later in life (Capaldi et al., 2012). Although there is little doubt that IPV in adulthood is among these negative consequences, this cycle of violence is not a sealed fate and most individuals exposed to early adversity do not grow up to participate in aggressive relationships in adulthood (Heyman & Slep, 2002). Thus, it is important to examine specific pathways that may explain how early adversity covaries with IPV later in life. Drawing from the concept of stress generation and the Dynamic Developmental Systems approach to understanding IPV, we examined mediational models testing whether individuals exposed to adversity early in life would encounter more stress as they move into adulthood as compared to those individuals exposed to less family adversity, thus increasing their risk of IPV.

Replicating previous research (e.g., Stith et al., 2000), we found that early family adversity correlated with adversity in adulthood. We also discovered that the way in which early adversity and IPV co-varied differed for husbands and wives. For husbands, early adversity was related to IPV through current financial strain, experiences of discrimination, and perceived stress. For wives, in contrast, we found no support for such mediation. These findings are consistent with the possibility that the more adversity husbands experience early in life, the more stress they may encounter in adulthood, which in turn may undermine their capacity to manage problems or conflicts effectively, thereby predisposing them to experience IPV. That is, for husbands, but not for wives, the situations that may promote situational couple violence may be rooted in early adversity. Although a history of family adversity was also related to IPV for wives, this association could not be explained by current stress. One possible explanation is that there is a direct pathway linking wives' early adversity to later IPV. This proposition would align with social learning accounts suggesting

that wives' IPV may be initially acquired through modeling during childhood and may then be maintained through acts of reinforcement (Bell & Naugle, 2008), independent of other, environmental factors. Alternatively, other mediators not examined in the current research may help explain the association between early adversity and IPV for wives. These differential gender effects are in line with prior research showing, for example, a lack of significant association between women's discrimination and IPV (Trail et al., 2012) or between women's financial strain and IPV (Ulibarri et al., 2019), hinting at the possibility that such stressors are more likely to influence risk for violence among men than among women. Furthermore, when including all three mediators simultaneously in a single model, only the mediational path for husbands' financial strain remained statistically significant. Thus, although various facets of stress during adulthood appear to emanate from early adversity, finance-related stress may be the factor that positions newlywed husbands to be most likely to engage in IPV. We emphasize, however, that the current findings are correlational in nature and therefore cannot support causal inferences.

Thus, in keeping with the concept of stress generation and the Dynamic Developmental Systems perspective, the present findings are not inconsistent with the view that the situations that make couple violence more likely are a reflection of men's childhood upbringing, rendering men vulnerable to higher levels of stress in adulthood. These findings should not be interpreted to suggest that men with risky backgrounds are in any way blameworthy for these backgrounds or for their increased tendency to engage in IPV. Rather, similar to stress generation in the course of depression, whereby individuals are in no manner made responsible for their depressive symptoms, we intend to underscore the added vulnerability to later adversity that may be brought about by adverse experiences in childhood. Tests of alternative models enhance confidence in the present findings. Our results remained intact when controlling for relationship satisfaction, a consistent correlate of IPV (e.g., Stith et al., 2008), and we found no evidence that our main mediational configuration extended to dyadic outcomes other than IPV, as there were no mediational pathways from early adversity to stress to relationship satisfaction, for husbands or for wives. Lastly, we found no evidence that the association between early adversity and later IPV was stronger for those people exposed to greater levels of stress in adulthood, ruling out the idea that early and later forms of adversity combine in a multiplicative manner to predict IPV.

Limitations

Several factors limit interpretation of these findings. The use of subjective measures (i.e., self-report data) may have introduced bias across multiple domains: First, retrospective self-reporting of childhood experiences may introduce bias due to inaccuracies in reporters' memory (Baldwin, Reuben, Newbury, & Danese, 2019). Although our models assume that adverse childhood experiences temporally precede adult stress and IPV, these data were actually collected concurrently. Second, partners may have underreported their experiences with IPV. The argument might also be made, however, that finding significant effects despite such underreporting may make findings more conservative, thereby increasing our confidence in the current results. Third, there may also be a reporting bias inflating the association between early adversity and IPV as individuals more willing to disclose violence

experienced during childhood may be more willing to disclose violence experienced in adulthood. In addition, perhaps the greatest limitation of this work is our reliance on cross-sectional data to test mediational models. At best our findings provide 'proof of concept' that the stress generation model can be extended to IPV, but longitudinal data are needed to properly address this proposition. The use of a low-income, predominantly ethnic minority sample of newlyweds is a strength of this study, providing insight into relationship functioning among an understudied group that is at higher risk for stress and IPV. Nevertheless, we cannot say whether these results generalize to other kinds of samples, including dating couples or couples in more established relationships, same-sex couples, higher income couples, or clinical samples. It should be noted that rates of *physical* aggression, assessed by asking about only three different acts of physical IPV, were relatively low in our sample of newlywed couples, who predominantly experienced *psychological* forms of IPV. Thus, it is unclear whether our findings will generalize to couples with higher rates of physical violence. Finally, it is important to acknowledge that effect sizes of significant effects in our mediation models (effect sizes ranging from .15 to .43) and our moderation models (effect sizes ranging from .14 to .39) were relatively small. Future research, possibly using larger samples, is needed to validate the current findings.

Implications

Future research could consider examining other facets of adult adversity that may serve as mediators in the association between childhood family adversity and IPV, particularly for women. For example, support from family and friends has been shown to be particularly important for women (Nelson & Burke, 2018). Social support, or, more broadly, the structure and composition of social networks, may act as a more consistent mediator (or moderator) for women. For example, a wife who is confronted with early adversity may experience a higher chance of social isolation in adulthood, which may in turn increase her risk for IPV. On the one hand, this could occur because a limited availability of mates may result in more destructive, potentially violence-prone romantic relationships, and on the other hand because once in a destructive relationship, there may be fewer people available to support, warn, or protect her. Similarly, it is possible that childhood family adversity and adult stress are both due to a third variable (e.g., poverty) that is present throughout participants lives. This hypothesis could be explored by future studies. In addition, future research could examine protective factors, including interactions between partner variables. For example, it is possible that one partner's early adversity interacts with the other partner's capacity to offset stress experienced in everyday life. As such, although individuals who experienced early adversity are generally at higher risk for adversity in adulthood, such adulthood adversity may be lower if individuals are in a particularly supportive relationship. Therefore, the presence of an emotionally warm and understanding partner, who can calm their partner when faced with stressful situations, has the potential to decrease the risk that arguments escalate into violence. Lastly, examining other facets of early family adversity, such as community violence and exposure to crime, will be important points of study in future research. Such variables may be difficult to assess using retrospective reporting due to participants' difficulties in remembering and accurately judging their surroundings at an early age. Thus, collecting concurrent reports of adversity is recommended. Similarly,

teasing apart the differential effects of different facets of ACEs (e.g., directly experienced versus observed abuse) would be an important future research direction.

Bearing the aforementioned limitations in mind, the current study advances understanding of the interplay between adversity experienced during childhood and adulthood in predicting risk for IPV and may thereby elucidate how intimate relationships that are commonly thought of as sources of joy and pleasure also may bring about the possibility of hostility, abuse, and violence. According to the present results, IPV is not necessarily a reflection of problems that lie within a couple or within an individual but might be, at least in part, a reflection of the difficult circumstances that partners face. These difficult circumstances may include the risk that partners bring to the relationship, including experiences encountered early in life, as well as the circumstances they currently face, including financial strain, perceived discrimination, and stress. Clinicians, policy makers, and advocates may make use of this knowledge to identify couples at risk for IPV, namely those couples who have a history of early life adversity and who are currently exposed to high amounts of stress, especially financial stress for men. Furthermore, intervention strategies that alleviate stress, for example in the form of financial assistance, may prove particularly beneficial for these couples, perhaps in combination with communication skills training, potentially breaking the link between early adversity and IPV.

In sum, retrospective reports of early adversity covary with emotionally dysregulated interpersonal exchanges later in life and may, for a minority of affected men and women, lead to IPV in adulthood. However, the pathway by which early- and later-life violence are interconnected may differ for men and women. The present study shows that for men, early adversity is linked to IPV via stress, whereas for women, no such mediation emerges. Future research may benefit from exploring how other features of the early childhood environment accumulate to guide individuals into circumstances that render hostile behavior more likely, inadvertently perpetuating the cycle of violence.

Acknowledgments

Preparation of this report was supported by Research Grant R01HD076566 from the National Institute of Child Health and Human Development awarded to Benjamin R. Karney. Portions of this manuscript were presented at the 2018 International Conference and Summit on Violence, Abuse and Trauma (IVAT) in San Diego, California.

References

Angel R, Burton L, Chase-Lansdale PL, Cherlin A, & Moffitt R (2012). Welfare, children, and families: A three-city study. Ann Arbor, MI: Inter-university Consortium for Political and Social Research.

Baldwin JR, Reuben A, Newbury JB, & Danese A (2019). Agreement between prospective and retrospective measures of childhood maltreatment: A systematic review and meta-analysis. JAMA Psychiatry. doi:10.1001/jamapsychiatry.2019.0097

Bell KM, & Naugle AE (2008). Intimate partner violence theoretical considerations: Moving towards a contextual framework. Clinical Psychology Review, 28, 1096–1107. doi: 10.1016/j.cpr.2008.03.003 [PubMed: 18430501]

Bodenmann G, Meuwly N, Germann J, Nussbeck FW, Heinrichs M, & Bradbury TN (2015). Effects of stress on the social support provided by men and women in intimate relationships. Psychological Science, 26, 1584–1594. doi: 10.1177/0956797615594616 [PubMed: 26341561]

Breiding MJ (2015). Prevalence and characteristics of sexual violence, stalking, and intimate partner violence victimization—National intimate partner and sexual violence survey, united states, 2011. American Journal of Public Health, 105, e11–e12. Retrieved from https://search.proquest.com/docview/1690658642?accountid=14512

Brown MJ, Perera RA, Masho SW, Mezuk B, & Cohen SA (2015). Adverse childhood experiences and intimate partner aggression in the US: Sex differences and similarities in psychosocial mediation. Social Science & Medicine, 131, 48–57. doi: 10.1016/j.socscimed.2015.02.044 [PubMed: 25753285]

Caetano R, Ramisetty-Mikler S, Vaeth PAC, & Harris TR (2007). Acculturation stress, drinking, and intimate partner violence among hispanic couples in the U.S. Journal of Interpersonal Violence, 22, 1431–1447. doi: 10.1177/0886260507305568 [PubMed: 17925291]

Capaldi DM, & Kim HK (2007). Typological approaches to violence in couples: A critique and alternative conceptual approach. Clinical Psychology Review, 27, 253–265. doi: 10.1016/j.cpr.2006.09.001 [PubMed: 17084496]

Capaldi DM, Knoble NB, Shortt JW, & Kim HK (2012). A systematic review of risk factors for intimate partner violence. Partner Abuse, 3, 231–280. doi: 10.1891/1946-560.3.2.231 [PubMed: 22754606]

Cappell C, & Heiner RB (1990). The intergenerational transmission of family aggression. Journal of Family Violence, 5, 135–152. doi: 10.1007/BF00978516

Coker AL, Davis KE, Arias I, Desai S, Sanderson M, Brandt HM, & Smith PH (2002). Physical and mental health effects of intimate partner violence for men and women. American Journal of Preventive Medicine, 23, 260–268. doi: 10.1016/S0749-3797(02)00514-7 [PubMed: 12406480]

Copp JE, Giordano PC, Manning WD, & Longmore MA (2016). Couple-level economic and career concerns and intimate partner violence in young adulthood. Journal of Marriage and Family, 78, 744–758. doi: 10.1111/jomf.12282 [PubMed: 27284209]

Evans GW, & English K (2002). The environment of poverty: Multiple stressor exposure, psychophysiological stress, and socioemotional adjustment. Child Development, 73, 1238–1248. doi: 10.1111/1467-8624.00469 [PubMed: 12146745]

Felitti VJ, Anda RF, Nordenberg D, Williamson DF, Spitz AM, Edwards V, … & Marks JS (2019). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. American Journal of Preventive Medicine, 56, 774–786. doi: 10.1016/S0749-3797(98)00017-8 [PubMed: 31104722]

Funk JL, & Rogge RD (2007). Testing the ruler with item response theory: Increasing precision of measurement for relationship satisfaction with the Couples Satisfaction Index. Journal of Family Psychology, 21, 572–583. doi: 10.1037/0893-3200.21.4.572 [PubMed: 18179329]

Hammen C (1991). Generation of stress in the course of unipolar depression. Journal of Abnormal Psychology, 100, 555–561. doi: 10.1037/0021-843X.100.4.555 [PubMed: 1757669]

Hammen C (2005). Stress and depression. Annual Review of Clinical Psychology, 1, 293–319. doi: 10.1146/annurev.clinpsy.1.102803.143938

Heyman RE, & Slep AMS (2002). Do child abuse and interparental violence lead to adulthood family violence? Journal of Marriage and Family, 64, 864–870. doi: 10.1111/j.1741-3737.2002.00864.x

Hu L-T, & Bentler PM (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling, 6, 1–55. doi: 10.1080/10705519909540118

Hughes K, Bellis MA, Hardcastle KA, Sethi D, Butchart A, Mikton C, … & Dunne MP (2017). The effect of multiple adverse childhood experiences on health: A systematic review and meta-analysis. The Lancet Public Health, 2, e356–e366. doi: 10.1016/S2468-2667(17)30118-4 [PubMed: 29253477]

Huston TL, Caughlin JP, Houts RM, Smith SE, & George LJ (2001). The connubial crucible: Newlywed years as predictors of marital delight, distress, and divorce. Journal of Personality and Social Psychology, 80, 237–252. doi: 10.1037/0022-3514.80.2.237 [PubMed: 11220443]

Jasinski JL, Asdigian NL, & Kantor GK (1997). Ethnic adaptations to occupational strain: Work-related stress, drinking, and wife assault among anglo and hispanic husbands. Journal of Interpersonal Violence, 12, 814–831. doi: 10.1177/088626097012006003

Johnson MP (2006). Conflict and control: Gender symmetry and asymmetry in domestic violence. Violence Against Women, 12, 1003–1018. doi: 10.1177/1077801206293328 [PubMed: 17043363]

Karney BR, & Bradbury TN (1995). The longitudinal course of marital quality and stability: A review of theory, method, and research. Psychological Bulletin, 118, 3–34. doi:10.1037/0033-2909.118.1.3 [PubMed: 7644604]

Karney BR, & Bradbury TN (1997). Neuroticism, marital interaction, and the trajectory of marital satisfaction. Journal of Personality and Social Psychology, 72, 1075–1092. 10.1037/0022-3514.72.5.1075 [PubMed: 9150586]

Kenny DA, Kashy DA, & Cook WL (2006). Analyzing mixed independent variables: The actor-partner interdependence model In Kenny DA, Kashy DA, & Cook WL (Eds.), Dyadic data analysis (pp. 144–184). New York, NY: Guilford Press.

Kessler RC, Mickelson KD, & Williams DR (1999). The prevalence, distribution, and mental health correlates of percieved discrimination in the united states. Journal of Health and Social Behavior, 40, 208–230. doi: 10.2307/2676349 [PubMed: 10513145]

Lawrence E, & Bradbury TN (2001). Physical aggression and marital dysfunction: A longitudinal analysis. Journal of Family Psychology, 15, 135–154. 10.1037/0893-3200.15.1.135 [PubMed: 11322081]

Manning WD, Brown SL, Payne KK, & Wu HS (2014). Healthy marriage initiative spending and U.S. marriage & divorce rates, A state-level analysis (FP-14-02). Retrieved from National Center for Family and Marriage Research website: http://www.bgsu.edu/content/dam/BGSU/college-of-arts-andsciences/NCFMR/documents/FP/FP-14-02_HMIInitiative.pdf

Max W, Rice DP, Finkelstein E, Bardwell RA, & Leadbetter S (2004). The economic toll of intimate partner violence against women in the United States. Violence and Victims, 19, 259–272. doi: 10.1891/088667004780905660 [PubMed: 15631280]

Neff LA, & Karney BR (2005). To know you is to love you: The implications of global adoration and specific accuracy for marital relationships. Journal of Personality and Social Psychology, 88, 480–497. doi: 10.1037/0022-3514.88.3.480 [PubMed: 15740441]

Nelson DL, & Burke RJ (2018). Gender, work stress, and health. Washington, DC: American Psychological Association.

Probst JC, Wang J, Martin AB, Moore CG, Paul BM, & Samuels ME (2008). Potentially violent disagreements and parenting stress among American Indian/Alaska native families: Analysis across seven states. Maternal and Child Health Journal, 12, S91–S102. doi: 10.1007/s10995-008-0370-0

Shonkoff JP, Garner AS, Siegel BS, Dobbins MI, Earls MF, McGuinn L, … Wood DL (2012). The lifelong effects of early childhood adversity and toxic stress. Pediatrics, 129, e232–e246. doi: 10.1542/peds.2011-2663 [PubMed: 22201156]

Slep AMS, Foran HM, Heyman RE, & Snarr JD (2010). Unique risk and protective factors for partner aggression in a large scale air force survey. Journal of Community Health: The Publication for Health Promotion and Disease Prevention, 35, 375–383. doi: 10.1007/s10900-010-9264-3 [PubMed: 20373136]

Soper DS (2018). Indirect Mediation Effect Confidence Interval Calculator [Software]. Available from http://www.danielsoper.com/statcalc

Steiger JS (1990). Structural model evaluation and modification: An interval estimation approach. Multivariate Behavioral Research, 25, 173–180. doi: 10.1207/s15327906mbr2502_4 [PubMed: 26794479]

Stith SM, Green NM, Smith DB, & Ward DB (2008). Marital satisfaction and marital discord as risk markers for intimate partner violence: A meta-analytic review. Journal of Family Violence, 23, 149–160. doi: 10.1007/s10896-007-9137-4

Stith SM, Rosen KH, Middleton KA, Busch AL, Lundeberg K, & Carlton RP (2000). The intergenerational transmission of spouse abuse: A meta-analysis. Journal of Marriage and the Family, 62, 640–654. doi: 10.1111/j.1741-3737.2000.00640.x

Straus MA, & Douglas EM (2004). A short form of the revised conflict tactics scales, and typologies for severity and mutuality. Violence and Victims, 19, 507–520. doi: 10.1891/vivi.19.5.507.63686 [PubMed: 15844722]

Swopes RM, Simonet DV, Jaffe AE, Tett RP, & Davis JL (2013). Adverse childhood experiences, posttraumatic stress disorder symptoms, and emotional intelligence in partner aggression. Violence and Victims, 28, 513–530. doi: 10.1891/0886-6708.VV-D-12-00026 [PubMed: 23862313]

Trail TE, Goff PA, Bradbury TN, & Karney BR (2012). The costs of racism for marriage: How racial discrimination hurts, and ethnic identity protects, newlywed marriages among Latinos. Personality and Social Psychology Bulletin, 38, 454–465. doi: 10.1177/0146167211429450 [PubMed: 22109252]

Ulibarri MD, Salazar M, Syvertsen JL, Bazzi AR, Rangel MG, Orozco HS, & Strathdee SA (2019). Intimate partner violence among female sex workers and their noncommercial male partners in Mexico: A mixed-methods study. Violence Against Women, 25, 549–571. doi:10.1177/1077801218794302 [PubMed: 30156143]

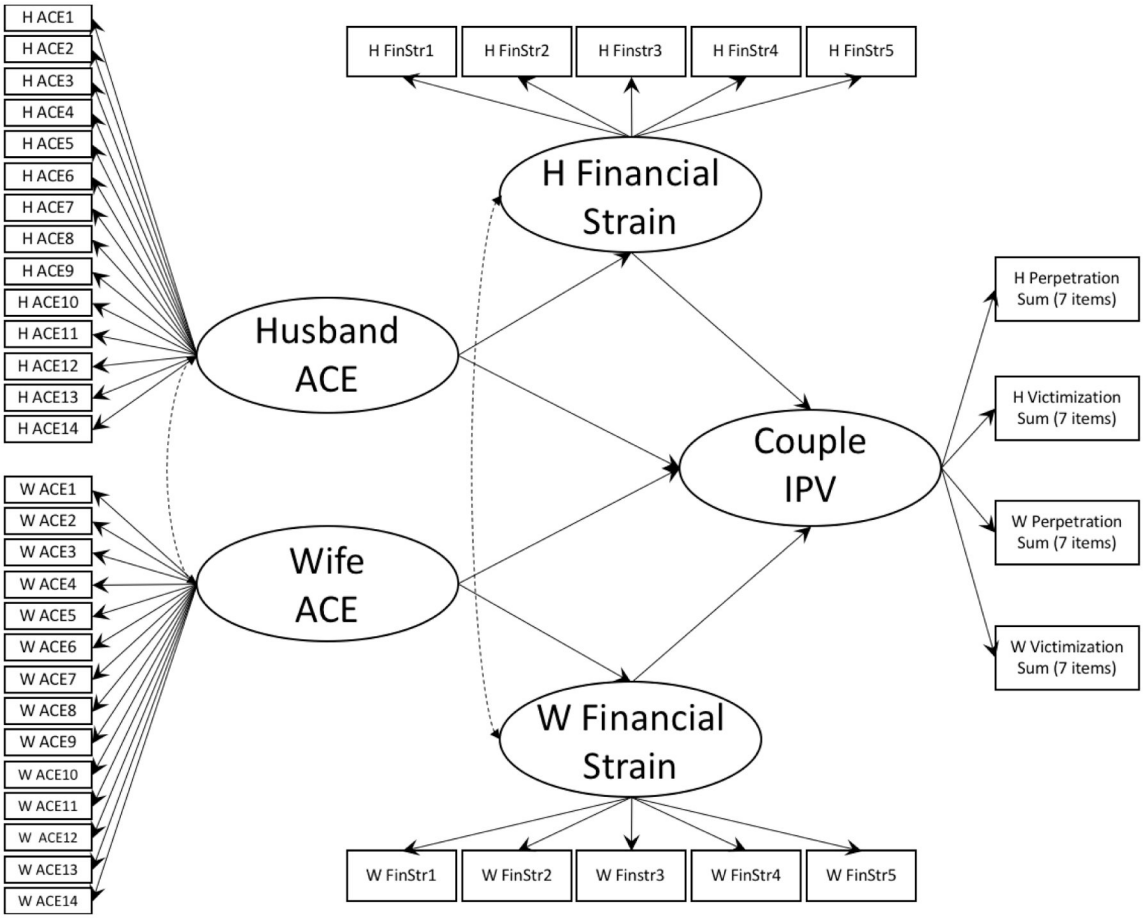

Figure 1.

Mediation Analyses from ACE to Financial Strain to Intimate Partner Violence (Model 2a). ACE = Adverse Childhood Experiences. IPV = Intimate Partner Violence. FinStr = Financial Strain. H = Husband. W = Wife. Straight lines indicate regression paths, dotted lines indicate correlations. Models 2b and 2c are similar to Model 2a, replacing the Husband and Wife Financial Strain latent variables with latent variables for Husband and Wife Discrimination and Perceived Stress, respectively.

J Fam Psychol. Author manuscript; available in PMC 2021 June 01.

Table 1

Bivariate Correlations between Study Variables

Measure	1	2	3	4	5	6
1. ACE	**.11**	.25*	.39*	.25*	.24*	−.19*
2. Financial Strain	.09	**.51***	.29*	.33*	.27*	−.23*
3. Discrimination	.26*	.22*	**.17***	.37*	.31*	−.29*
4. Perceived Stress	.29*	.35*	.43*	**.32***	.32*	−.23*
5. Intimate Partner Violence+	.30*	.15*	.24*	.31*	---	−.38*
6. Satisfaction	−.16*	−.19*	−.16*	−.28*	−.38*	**.50***
Husbands: Mean (SD)	2.69 (3.04)	5.59 (3.07)	3.20 (3.30)	4.99 (3.63)	P[a]: 12.33 (15.17) V[b]: 14.12 (18.61)	43.12 (7.93)
Wives: Mean (SD)	3.21 (3.47)	5.84 (3.20)	2.95 (3.06)	6.13 (3.50)	P[a]: 14.61 (17.00) V[b]: 10.36 (12.99)	42.32 (8.84)
Mean Difference (t)	−1.82	−1.19	−4.17*	0.95	−2.10* 3.08*	1.14

Note: ACE = Adverse childhood experiences. Intercorrelations between husbands' characteristics are reported above the diagonal and wives' characteristics are reported below the diagonal. Values along the diagonal represent correlations between husbands and wives' characteristics.

+Intimate Partner Violence is assessed at the couple-level, thus no correlation could be calculated.

[a]P = IPV Perpetration

[b]V = IPV Victimization

*$p < .05$

Table 2

Aim 1: Associations between ACE, Stress, and IPV (Models 1a-1c)

Predictor	beta	SE	Wald	Overall Model Fit	
				RMSEA	SRMR
ACE and IPV					
Husbands	.25*	.25	0.01	.06	.07
Wives	.26*	.26			
Financial Strain and IPV					
Husbands	.45*	.14	5.58*	.08	.06
Wives	−.16	.14			
Discrimination and IPV					
Husbands	.32*	.08	1.66	.07	.08
Wives	.13	.10			
Perceived Stress and IPV					
Husbands	.34*	.11	0.79	.06	.07
Wives	.23*	.11			

Note: ACE = Adverse childhood experiences, IPV = Intimate partner violence. Wald test value <.05 indicates that the difference in strength of effects from husband predictor to outcome versus wife predictor to outcome is statistically significant. RMSEA < .07 and SRMR < .08 are indicative of acceptable overall model fit.

* $p < .05$

J Fam Psychol. Author manuscript; available in PMC 2021 June 01.

Table 3

Aims 2, 3.1, and 3.2: Mediation Analyses

Mediator Variable	beta(A)	Wald(A)	beta(B)	Wald(B)	beta(C)	Wald(C)	beta(CV)	Wald(CV)	Indir. Eff.	95% CI (L)	95% CI (U)	Overall Model Fit RMSEA	Overall Model Fit SRMR
Mediation Analyses from ACE to Stress to IPV													
Financial Strain													
Husbands	.19*	1.47	.39*	4.91*	.17	0.56	---	---	3.16	0.52	5.81	.05	.07
Wives	.05		−.16		.25*		---		−0.32	−1.84	1.21		
Discrimination													
Husbands	.43*	0.47	.23*	1.07	.15	0.26	---	---	4.17	1.25	7.10	.05	.07
Wives	.28*		.07		.21*		---		0.87	−1.47	3.21		
Perceived Stress													
Husbands	.24*	0.10	.27*	0.53	.16	0.01	---	---	2.84	0.32	5.35	.05	.08
Wives	.22		.19		.15		---		1.84	−0.43	4.11		
Mediation Analyses from ACE to Stress to IPV Controlling for Satisfaction													
Financial Strain													
Husbands	.20*	1.55	.36*	5.37*	.12	0.61	−.27*	0.71	3.05	0.45	5.65	.05	.07
Wives	.05		−.23		.21*		−.20*		−0.47	−2.24	1.30		
Discrimination													
Husbands	.43*	0.46	.13	0.21	.13	0.19	−.30*	1.35	2.34	−0.32	5.00	.05	.08
Wives	.29*		.07		.18*		−.15		0.83	−1.47	3.13		
Perceived Stress													
Husbands	.25*	0.12	.24	0.80	.12	0.04	−.27*	0.79	2.56	0.10	5.03	.05	.08
Wives	.23		.10		.14		−.16		1.02	−1.15	3.19		
Mediation Analyses from ACE to Stress to Satisfaction													
ACE to Satisfaction													
Husbands	−.17*	0.04	---	---	---	---	---	---	---	---	---	.05	.06
Wives	−.14		---		---		---		---	---	---		
Financial Strain													

J Fam Psychol. Author manuscript; available in PMC 2021 June 01.

Mediator Variable	beta(A)	Wald(A)	beta(B)	Wald(B)	beta(C)	Wald(C)	beta(CV)	Wald(CV)	Indir. Eff.	95% CI (L)	95% CI (U)	Overall Model Fit	
												RMSEA	SRMR
Husbands	.19*	1.37	−.24*	0.01	−.12	0.29	---	---	−0.09	−0.53	0.36	.05	.07
Wives	.04		−.18*		−.13		---		−0.02	−0.41	0.37		
Discrimination													
Husbands	.42*	0.42	−.16	0.46	−.11	0.02	---	---	−0.13	−0.69	0.44	.05	.07
Wives	.28*		−.20*		−.09		---		−0.15	−0.72	0.42		
Perceived Stress													
Husbands	.24*	0.11	−.28*	0.65	−.11	0.02	---	---	−0.13	−0.64	0.38	.05	.08
Wives	.22*		−.35*		−.06		---		−0.21	−0.85	0.43		

Note: ACE = Adverse childhood experiences, IPV = Intimate partner violence, CV = Covariate, Indir. Eff. = Indirect effect. Standardized coefficients reported here. For Columns 1 through 6, (A) refers to the path from predictor to mediator, (B) refers to the path from mediator to outcome, and (C) refers to the path from predictor to outcome. Indirect effect calculated using unstandarized coefficients. A mediated effect is supported if the 95% confidence interval does not contain 0. RMSEA < .07 and SRMR < .08 are indicative of acceptable overall model fit.

*Statistically significant p-value following Holm alpha adjustment.

Table 4

Moderation Analyses from ACE-by-Stress to IPV

Predictor Variable	beta	SE(beta)	Wald	Overall Model Fit AIC	BIC
Moderation by Financial Strain					
H ACE	.16	.09	0.51		
W ACE	.25*	.07			
H Financial Strain	.39*	.14	4.70*	17381.23	17856.28
W Financial Strain	−.17	.13			
H ACE*Financial Strain	.06	.18	<0.01		
W ACE*Financial Strain	.08	.10			
Moderation by Discrimination					
H ACE	.17	.08	0.14		
W ACE	.21*	.07			
H Discrimination	.29*	.09	2.62	17603.64	18099.35
W Discrimination	.08	.10			
H ACE*Discrimination	−.14	.07	1.50		
W ACE*Discrimination	−.03	.06			
Moderation by Perceived Stress					
H ACE	.15	.09	0.12		
W ACE	.12	.07			
H Perceived Stress	.27	.13	0.33	21187.34	21806.98
W Perceived Stress	.20	.12			
H ACE*Perceived Stress	−.06	.11	0.44		
W ACE*Perceived Stress	.08	.15			

Note: H = Husband, W = Wife, ACE = Adverse childhood experiences, IPV = Intimate partner violence, AIC = Akaike information criterion, BIC = Bayesian information criterion. Standardized coefficients reported here. AIC and BIC were used to assess model fit as absolute fit statistics, such as RMSEA and SRMR, are not available for models where numerical integration is required.

*Statistically significant p-value following Holm alpha adjustment.