

# Using I<sup>3</sup> Theory to Clarify When Dispositional Aggressiveness Predicts Intimate Partner Violence Perpetration

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Deriving hypotheses from I<sup>3</sup> theory (pronounced “I-cubed theory”), the authors conducted 4 studies to clarify the circumstances under which dispositional aggressiveness predicts intimate partner violence (IPV) perpetration. Consistent with the hypothesis that this link would be stronger when inhibitory processes are weak rather than strong, Studies 1 and 2 demonstrated that dispositional aggressiveness was an especially robust predictor of IPV perpetration among people experiencing self-regulatory strength depletion. Consistent with the hypothesis that this Dispositional Aggressiveness × Inhibition interaction effect would be stronger when instigating triggers are strong rather than weak, Studies 3 and 4 demonstrated that dispositional aggressiveness was an especially robust predictor of IPV perpetration among people characterized by both weak inhibition (poor executive control in Study 3, depletion in Study 4) and strong instigation (provocation in both studies). These effects were robust in studies employing experimental and nonexperimental designs, cross-sectional and longitudinal methods, dating and married participants, self-report and behavioral measures of IPV perpetration, and diverse operationalizations of all constructs. Discussion emphasizes the importance of incorporating instigating, impelling, and inhibiting processes into theoretical and empirical analyses of IPV perpetration.

**Keywords:** I<sup>3</sup> theory, intimate partner violence, dispositional aggressiveness, self-regulation, depletion, executive control

Since the 1970s, scholars have exerted enormous effort to understand intimate partner violence (IPV). These exertions have been successful, revealing dozens of risk factors for IPV perpetration, including demographic, sociocultural, individual, relational, and situational factors (for reviews, see Finkel & Eckhardt, in press; Schumacher, Feldbau-Kohn, Slep, & Heyman, 2001; Stith, Smith, Penn, Ward, & Tritt, 2004). Scholars have struggled, how-

ever, to develop a broad framework to integrate this sprawling literature in process-oriented terms, and “theory and research on relationship violence remain uncohesive” (Berscheid & Regan, 2005, p. 52).

Recently, Finkel and colleagues have attempted to build such an integrative framework (Finkel, 2007; Finkel & Eckhardt, in press; Slotter & Finkel, 2011), called I<sup>3</sup> theory (pronounced “I-cubed theory”), but most of these attempts have been theoretical rather than empirical. The present report puts this framework to empirical test. Specifically, we use it to develop novel hypotheses about the circumstances under which one established risk factor—dispositional aggressiveness—exhibits strong versus weak links with IPV perpetration. We test these hypotheses in four studies.

## I<sup>3</sup> Theory and IPV Perpetration

According to I<sup>3</sup> theory, all risk factors promote IPV perpetration through one (or more) of three processes—instigation, impellance, and inhibition. *Instigation* refers to the exposure to discrete partner behaviors that normatively trigger an urge to aggress (e.g., provocation). We use the term “normative” to refer to the experience of the typical person confronting a given instigator in a given context. *Impellance* refers to dispositional or situational factors that psy-

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chologically prepare the individual to experience a strong urge to aggress when encountering this instigator in this context (e.g., dispositional aggressiveness). These factors collectively determine the potential perpetrator's "urge-readiness"—the readiness to experience an urge to aggress in response to this particular instigator in this particular context. Due to variability in impellance, people may sometimes be unaffected by an instigator, experiencing virtually no urge to aggress, or they may be strongly affected, experiencing a powerful urge to aggress. In other words, instigation and impellance interact, such that the urge to aggress is most powerful when both are strong. Finally, *inhibition* refers to dispositional or situational factors that increase the likelihood that people will override this urge to aggress (e.g., executive control). When the strength of inhibition exceeds the strength of the urge to aggress, people behave nonviolently; when the reverse is true, they behave violently.

Until recently, IPV scholarship largely neglected the role of inhibition in helping to determine whether people act upon an urge to aggress (Finkel, 2007, 2008). Indeed, perhaps the foundational idea in the IPV literature is that people perpetrate violence against intimate partners because they are socialized to do so (Dobash & Dobash, 1979; Straus, Gelles, & Steinmetz, 1980), an idea that continues to carry strong currency in the 21st century (e.g., Kwong, Bartholomew, Henderson, & Trinke, 2003). Although it is surely true that people who have been socialized to enact violence against intimate partners are more likely to perpetrate such behaviors than people who have not, this perspective neglects those (perhaps quite frequent) acts of violence that transpire when people who believe that violence is unacceptable fail to restrain impulsive urges to aggress in a given instance (Finkel, DeWall, Slotter, Oaten, & Foshee, 2009; also see Baumeister, 1997). Consistent with this largely neglected view, a recent series of experimental and nonexperimental studies demonstrated that people's violent tendencies toward their intimate partner increase insofar as they have poor dispositional self-control, are forced to act quickly rather than be given time to consider their options, have depleted self-regulatory resources, or have not participated in a longitudinal self-control bolstering regimen (Finkel et al., 2009). These effects of poor inhibition appear to be limited to situations in which people experience an urge to aggress in the first place. For exam-

ple, participants whose self-regulatory resources were experimentally depleted were especially aggressive, but only if their partner had provoked them first.

Within  $I^3$  theory, inhibitory processes take on a crucial role in predicting IPV perpetration, with IPV perpetration being most likely when instigation and impellance are strong and inhibition is weak. Indeed, as depicted in Figure 1,  $I^3$  theory suggests that instigation, impellance, and inhibition interact to create a "perfect storm" situation, in which IPV perpetration is much more likely in one situation—strong instigation, strong impellance, and weak inhibition—than in the seven situations deriving from the other combinations of the three processes. To date, only one study has tested this perfect storm hypothesis, and the results provided strong support for it (Slotter et al., 2011). Specifically, participants were much more aggressive toward their romantic partner in this perfect storm situation—where they had been provoked by the partner (strong instigation), they were dispositionally characterized by strong tendencies toward retaliation (strong impellance), and they were not particularly committed to making the relationship last in the long run (weak inhibition)—than when even one of these risk factors trended in the opposite direction (weak provocation, weak dispositional retaliatory tendencies, or strong commitment).

Before turning our attention to the key constructs that we investigate in the present research, particularly dispositional aggressiveness, we offer a general comment about the process of translating ideas derived from  $I^3$  theory into empirically tested hypotheses (see Table 1). When developing an  $I^3$  theory analysis of IPV perpetration, for example, scholars must conceptualize the predictors at three levels of analysis: (a) instigation, impellance, and inhibition form the *process level*; (b) risk factors like provocation, dispositional aggressiveness, and executive control form the *construct level*; and (c) specific operationalizations (e.g., insulting feedback to assess instigation, self-reported dispositional physical aggressiveness to assess dispositional aggressiveness, Stroop color-naming task performance to assess executive control) form the *operation level*. The broadest support for  $I^3$  theory emerges from a series of studies that vary assessments at not only the operation level but also the construct level. We adopted this approach in the current research to clarify the link between dispositional aggressiveness and IPV.

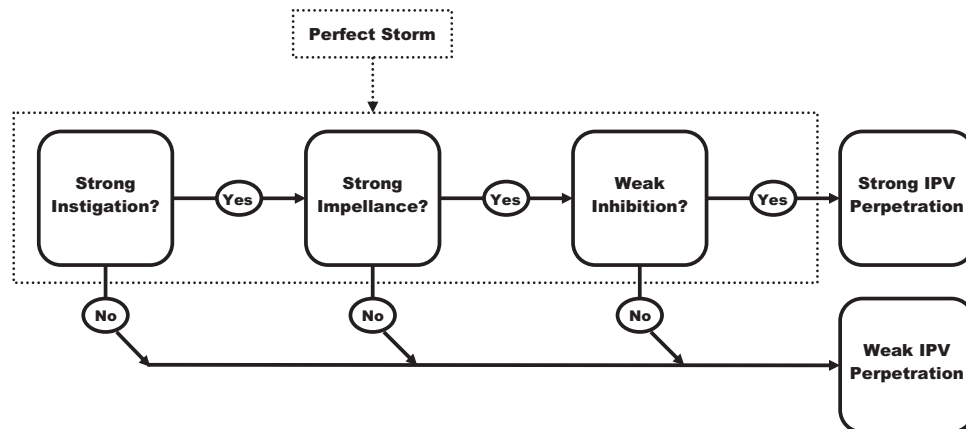


Figure 1. Applying  $I^3$  theory to the domain of intimate partner violence (IPV) perpetration.

Table 1  
Summarizing the Four Studies From I<sup>3</sup> Theory's Three Levels of Analysis

Process level	Construct level	Operation level
Study 1		
Instigation	—	—
Impellance	Dispositional aggressiveness	Intermittent explosive disorder diagnosis
(Dis)inhibition	Depletion	Self-reported fatigue
Study 2		
Instigation	—	—
Impellance	Dispositional aggressiveness	Self-reported dispositional physical aggressiveness
(Dis)inhibition	Depletion	Attention regulation experimental manipulation
Study 3		
Instigation	Provocation	Self-reported daily provocation from partner
Impellance	Dispositional aggressiveness	Self-reported dispositional physical aggressiveness
Inhibition	Executive control	Low interference on the Stroop task
Study 4		
Instigation	Provocation	Partner's report of his or her own dispositional neuroticism
Impellance	Dispositional aggressiveness	Average of seven daily reports of experienced anger
(Dis)inhibition	Depletion	Self-reported psychosocial stress

### Dispositional Aggressiveness and IPV Perpetration

*Dispositional aggressiveness*, an individual difference variable that applies throughout the general population, encompasses trait-level tendencies toward angry affect, hostile cognition, and aggressive interpersonal behavior (A. H. Buss & Perry, 1992). Meta-analytic reviews demonstrate that dispositional aggressiveness and its subcomponents (e.g., anger) exhibit a moderate to strong association with physically aggressive behavior, including IPV perpetration (Bettencourt, Talley, Benjamin, & Valentine, 2006; Norlander & Eckhardt, 2005; Schumacher et al., 2001). This link likely emerges because dispositionally aggressive people tend to experience an especially strong urge to aggress when they confront provocation rather than through some other process (i.e., through impellance rather than through disinhibition). Indeed, dispositional aggressiveness is frequently operationalized in terms of anger items like "I sometimes feel like a powder keg ready to explode" and dispositional physical aggressiveness items like "Given enough provocation, I may hit another person" (A. H. Buss & Perry, 1992). Furthermore, people who are high in dispositional aggressiveness and its subcomponents are hyperreactive to provocation, exhibiting a constellation of physiological and neural responses associated with the urge to aggress. For example, following provocation, they exhibit elevated systolic and diastolic blood pressure (Suls & Wan, 1993) and strong activity in the left dorsal anterior cingulate cortex, a brain region associated with the experience of state-level anger (Denson, Pederson, Ronquillo, & Nandy, 2009).

Although the link between dispositional aggressiveness and the urge to aggress appears to be robust, the urge to aggress need not always yield aggressive behavior. Rather, the strength of the association of dispositional aggressiveness with aggressive behavior likely depends upon the instigators and inhibitors at play. Indeed, there is substantial across-study variability in the size of this association (e.g., Bettencourt et al., 2006; Norlander & Eckhardt, 2005). According to I<sup>3</sup> theory, a full understanding of the link between dispositional aggressiveness and IPV perpetration requires the consideration of two additional factors: (a) the degree to which the potential perpetrators inhibit the urge to aggress in a

given situation (inhibition) and (b) the degree to which that person's partner has behaved in ways that normatively instigate the urge to aggress in the first place (instigation). Consistent with this theoretical logic, we hypothesized that dispositional aggressiveness would exhibit stronger associations with IPV perpetration when inhibition is weak rather than strong and that this Dispositional Aggressiveness  $\times$  Inhibition interaction would be stronger when instigation is strong rather than weak. As presented in Table 1, we operationalized our impellor, dispositional aggressiveness, in terms of clinical diagnosis of intermittent explosive disorder (IED) in Study 1, self-reports of dispositional physical aggressiveness in Studies 2 and 3, and the average of seven daily reports of experienced anger in Study 4. We adopted a similar approach regarding our inhibitors and our instigator, which we now address in turn.

### Inhibition as a Moderator of the Link Between Dispositional Aggressiveness and IPV Perpetration

As noted above, dispositional aggressiveness is a robust predictor of IPV perpetration, but the strength of this association varies considerably across studies. According to I<sup>3</sup> theory, one major reason for this variability is that inhibitory factors sometimes moderate the link between dispositional aggressiveness (an impellor) and IPV perpetration (Finkel, 2007; Finkel & Eckhardt, in press). After all, from our perspective, dispositional aggressiveness does not promote aggression directly; rather, it interacts with instigating factors to promote the *urge to aggress*. People will act upon this urge when inhibition is weak, but they will frequently override it when inhibition is strong. As such, the association of dispositional aggressiveness with IPV perpetration should be stronger when inhibition is weak rather than strong.

As presented in Table 1, we assessed inhibition in Studies 1, 2, and 4 in terms of the construct of *self-regulatory strength depletion* (disinhibition). According to the strength model of self-regulation, self-regulation relies on a limited, depletable, and renewable resource (Baumeister, Heatherton, & Tice, 1994; Baumeister, Vohs, & Tice, 2007; Muraven & Baumeister, 2000). Acts of self-regulation draw upon this resource, temporarily depleting it and

reducing its availability for immediate subsequent acts of self-regulation (for a meta-analytic review, see Hagger, Wood, Stiff, & Chatzisarantis, 2010), such as refraining from IPV (Finkel et al., 2009). Indeed, depleted people act upon their urges across a variety of domains more than nondepleted people do, even when those urges undermine long-term goals to diet, to treat one's romantic partner with respect, and so forth (Finkel & Campbell, 2001; Johnson, Richeson, & Finkel, 2011; Vohs & Heatherton, 2000). Of particular relevance to the present article, depleted people behave more aggressively than nondepleted people do, but only when experiencing an urge to aggress in the first place (DeWall, Baumeister, Stillman, & Gailliot, 2007; Finkel et al., 2009).

Although we tapped disinhibition in terms of depletion in Studies 1, 2, and 4, we employed different operationalizations across the three studies. In Study 1, we operationalized disinhibition with a self-report measure tapping psychological exhaustion, which links quite closely to (a) the theoretical analysis underlying the limited resource model suggesting that exhaustion is a central indicator of depletion (Baumeister et al., 1994); (b) previously validated self-report measures of depletion, which employ items such as "I felt tired" (Finkel & Campbell, 2001); and (c) meta-analytic results demonstrating that experimental depletion manipulations exert a robust effect on self-reported fatigue (Hagger et al., 2010). In Study 2, we experimentally manipulated depletion, employing a standardized attention control task from the depletion literature (DeWall et al., 2007).

In Study 4, a longitudinal study of marriage, we operationalized depletion with a self-report measure of chronic stress. Although stress is a complex construct, theory and evidence suggest that it exerts its effects predominantly by undermining self-regulation (i.e., by promoting disinhibition). Indeed, in their seminal monograph introducing depletion theory, Baumeister et al. (1994, p. 19) argued that

confronting stressful or other circumstances that are unusually demanding should also impair self-regulation. When going through divorce, or when coping with a busy season at work or final examinations in school, for example, people should be more likely to exhibit breakdowns in self-regulation.

Supporting this theoretical analysis, subsequent studies demonstrated that stress predicts a broad range of self-regulatory failures, including increased smoking and drinking, diminished emotional control and maintenance of household chores, and even impaired Stroop performance following a laboratory-based depletion manipulation (Muraven, Tice, & Baumeister, 1998; Oaten & Cheng, 2005). From this perspective, it is not surprising that elevated psychosocial stress predicts stronger tendencies toward IPV perpetration (e.g., Cano & Vivian, 2003; Frye & Karney, 2006; Hellmuth & McNulty, 2008; MacEwen & Barling, 1988).

Complementing these depletion-based operationalizations of (dis)inhibition in Studies 1, 2, and 4, Study 3 operationalized inhibition with a conceptually related construct, individual differences in executive control, which we operationalized in terms of performance on the version of the Stroop (1935) color-naming task employed by Inzlicht and Gutsell (2007). In this task, participants view color words (e.g., *red*), and, depending upon the trial, the letters of the word are printed in the same color as the word (e.g., the word *red* printed in red letters) or in a different color (e.g., the

word *red* printed in green letters). The participant's task is to report the color of the letters, which, due to the dominant tendency to read the word as it is written, tends to be easy when they match the color spelled out by the word but challenging when they do not. Faster inhibition of the dominant reading tendency reflects stronger executive control (Miyake et al., 2000). Study 3 was the first study to examine links between executive control and IPV perpetration, but previous research has demonstrated links between executive control on the Stroop task and successful inhibition in other relationship contexts, including a willingness to forego the opportunity to meet an attractive alternative to one's current romantic partner (Pronk, Karremans, & Wigboldus, 2011).

Although no studies to date have tested whether depletion or executive control moderates the link between dispositional aggressiveness and physically aggressive behavior, several studies have demonstrated that other inhibitors moderate this link. For example, the link is weaker among people whose self-regulatory resources have been temporarily strengthened through glucose consumption or through a self-regulatory bolstering regimen than among people whose resources have not been strengthened (Denson, Capper, Oaten, Friese, & Schofield, 2011; Denson, von Hippel, Kemp, & Teo, 2010), and it is stronger among people who have consumed alcohol (a disinhibitor) than among people who have not (Eckhardt, 2007; Eckhardt & Crane, 2008; Giancola & Parrott, 2008; Giancola, Saucier, & Gussler-Burkhardt, 2003; Moore, Elkins, McNulty, Kivisto, & Handsel, 2011). Although these studies were not situated within a broader metatheoretical framework, they provide an empirical foundation for hypothesizing that the link between dispositional aggressiveness and IPV perpetration will be moderated by depletion or executive control. Of course, no studies to date have examined whether such Impellance  $\times$  Inhibition effects are moderated by instigation, a major goal of the present article.

### Incorporating Instigation

The interplay between impellance (e.g., dispositional aggressiveness) and inhibition (e.g., depletion) served as the starting point for I<sup>3</sup> theory (Finkel, 2007), but the story is incomplete without incorporating instigation. After all, even the angriest, most depleted person in the world behaves nonviolently in some situations, a realization that provides a second plausible reason for the across-study variability in the strength of the link between dispositional aggressiveness and physical aggression: The levels of instigation likely varied across prior studies, and the link between dispositional aggressiveness and physical aggression should be stronger in those studies incorporating stronger rather than weaker instigation.

We tested the moderating role of instigation in two studies (see Table 1). In Study 3, a daily diary study, we operationalized instigation with a straightforward self-report measure of the degree to which participants had been provoked by their partner that day. In Study 4, the longitudinal marriage study, we operationalized instigation with the partner's report of his or her own neuroticism, thereby shifting the instigation emphasis from discrete instances of partner provocation to general features that increase the frequency and severity of provocation that participants are prone to confront in everyday life. Indeed, highly neurotic people reliably tend to be especially provoking during couple interaction (D. M. Buss, 1991;

Caughlin, Huston, & Houts, 2000; Caughlin & Vangelisti, 2000; Donnellan, Conger, & Bryant, 2004; McNulty, 2008).

### Hypotheses and Research Overview

I<sup>3</sup> theory is an organizing framework that emphasizes the moderating influences of instigation, impellance, and inhibition. The four studies reported below investigated moderators of the link between one impellor, dispositional aggressiveness, and IPV perpetration. Studies 1 and 2 tested the hypothesis that the association of dispositional aggressiveness with IPV perpetration would be strongly positive when inhibition is weak, but weaker and perhaps nonsignificant when inhibition is strong (Impellor  $\times$  Inhibitor interaction effect). Studies 3 and 4 tested the hypothesis that the association of dispositional aggressiveness with IPV perpetration would be moderated by both inhibition and instigation (Instigator  $\times$  Impellor  $\times$  Inhibitor interaction effect). Unpacking this three-way interaction effect, we hypothesized that the simple Dispositional Aggressiveness  $\times$  Inhibitor two-way interaction effect would be significant when provocation is strong, but weaker and perhaps nonsignificant when provocation is weak. Unpacking the simple two-way interaction effect within the high-provocation condition, we hypothesized that the simple effect of dispositional aggressiveness would be stronger when inhibition is weak rather than strong.<sup>1</sup>

To demonstrate the broadest level of support for I<sup>3</sup> theory, the four studies employed divergent and complementary research methods. Study 1 was a nationally representative survey of married individuals, Study 2 was a laboratory experiment involving undergraduate students, Study 3 was a 5-week daily diary study of dating couples, and Study 4 was a longitudinal study of married couples. Further, as noted previously and in Table 1, the studies varied in their constructs and in how they operationalized those constructs. Using such varied operationalizations allowed us to triangulate upon our phenomena of interest (the association of dispositional aggressiveness with IPV perpetration, and the moderators thereof), demonstrating the ability of I<sup>3</sup> theory not only to spark novel hypotheses but also to provide sufficient flexibility that scholars can operationalize their key constructs in diverse ways within its broad framework.

### Study 1

In Study 1, we tested whether the association of dispositional aggressiveness with IPV perpetration would be stronger when inhibition is weak rather than strong. We operationalized dispositional aggressiveness in terms of a clinical diagnosis of intermittent explosive disorder (IED). People with this diagnosis, who exhibit tendencies toward extreme anger and recurrent impulsive aggression (Kessler et al., 2006), manifest an interpersonal style akin to those at the top of the dispositional aggressiveness continuum. We operationalized inhibition in terms of subjective reports of general depletion, and we assessed IPV perpetration with an abbreviated and modified version of the Physical Assault subscale of the Conflict Tactics Scales (Straus, 1979), which assesses how frequently participants enact specific physically violent behaviors against their partner.

This study employed data from the National Comorbidity Survey—Replication (NCS–R). The NCS–R is a nationally represen-

tative survey of Americans, and it included 175 respondents clinically diagnosed with IED (Kessler & Merikangas, 2004). Although the link between IED and violent behavior likely involves both impellance and disinhibition, the link through impellance appears to be far more robust. For example, people with (vs. without) IED tend to be angrier (McCloskey, Berman, Noblett, & Coccaro, 2006), to make more hostile attributions when confronted with socially ambiguous cues (Coccaro, Noblett, & McCloskey, 2009), and to exhibit stronger amygdala activation in response to provocation (McCloskey, Phan, Angstadt, & Coccaro, 2011)—all factors that are hypothesized to function as impellers rather than disinhibitors. (In terms of inhibition, support for the view that people with [vs. without] IED have poorer executive control is mixed; Best, Williams, & Coccaro, 2002; McCloskey et al., 2011.)

The NCS–R did not collect instigator information, so we focused on the impellor/inhibitor aspect of I<sup>3</sup> theory (Finkel, 2007). There is widespread consensus among relationship researchers that most couples experience some amount of conflict (e.g., Holmes & Murray, 1996), so it is a safe bet that most of the participants in this study experienced nonzero levels of instigation from their partner; definitive instigation information awaits Study 2 and especially Studies 3 and 4.

### Method

**Participants.** The NCS–R is a nationally representative survey of English-speaking household residents aged 18 years and older in the contiguous United States. Professional interviewers from the Institute for Social Research at the University of Michigan carried out face-to-face interviews between February 2001 and April 2003. There were two parts to the survey. Part I included a core diagnostic assessment of all respondents ( $N = 9,282$ ) that took an average of 1 hr to administer. Part II, which was administered to a subset of 5,692 respondents, included questions about risk factors, consequences, other correlates, and additional disorders. Respondents in Part II included all respondents who met lifetime criteria for any Axis I disorder plus a probability subsample of other Part I respondents. As described below, 1,593 married/cohabiting respondents were included in the present analyses, 175 of whom (114 men, 61 women) met the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; American Psychiatric Association, 1994) criteria for a diagnosis of IED. Average age was 45.05 years ( $SD = 15.07$ ), and participants had been with their current partner for an average of 37.87 months ( $SD = 93.70$ ). Demographically, 80% were Caucasian, 9% were African American, and 11% identified as other.

**Materials and procedures.** Interviewers assessed all constructs in a face-to-face interview. The NCS–R employed standardized diagnostic procedures for diagnosing IED. Specifically, it used the Composite International Diagnostic Interview to assess

<sup>1</sup> We did not expect that these hypothesized I<sup>3</sup> theory effects would differ for men versus women, but, for exploratory purposes, we tested whether participant sex moderated our highest order interaction term in all four studies. No systematic patterns emerged: The key interaction term was significantly stronger for women in Study 1, significantly stronger for men in Study 3, and did not approach significance in Studies 2 and 4. In all four studies, the highest order interaction effect exhibited the same general pattern for both sexes.

participants' lifetime *DSM-IV* psychiatric diagnoses (Kessler & Ustun, 2004). This structured interview is based on the *DSM-IV* and the 10th revision of the *International Classification of Diseases and Related Health Problems (ICD-10)*; World Health Organization, 2007) diagnostic systems and criteria. Generally speaking, participants receive an IED diagnosis if they meet three criteria: (a) several serious episodes of assault or destruction of property, (b) the degree of aggressiveness expressed during these episodes is grossly out of proportion to any precipitating psychosocial stressors, and (c) the episodes are not better accounted for by another mental disorder (for full discussion of diagnostic procedures, see Kessler et al., 2006).

The NCS-R included a single-item self-report measure that can serve as a reasonable proxy for general tendencies to experience self-regulatory strength depletion. This item assessed how frequently participants felt exhausted for no good reason over the preceding month (1 = *often*, 4 = *never*;  $M = 1.65$ ,  $SD = 0.95$ ). To allow us to test certain alternative explanations of our effects, we also used the same response scale to assess (a) participants' general levels of general psychological distress and (b) their depressive tendencies to feel "blue." Scores on these three constructs were reversed and then mean centered, with higher feelings indicating greater levels of a given construct. As noted above, IED diagnosis served as the impellor, whereas depletion served as the disinhibitor.

Participants reported their frequency of IPV perpetration by responding to two items that assessed how frequently they enacted violent behavior toward their spouse/partner; this measure was abbreviated and modified from the Physical Assault subscale of the Conflict Tactics Scales (Straus, 1979). Each item began as follows: "People handle disagreements in many different ways. Over the course of your relationship, how often have you ever done any of these things to your current spouse/partner—often, sometimes, rarely, or never." The first item consisted of "pushed, grabbed, or shoved," "threw something," and "slapped or hit"; the second item consisted of "kicked, bit, or hit with a fist," "beat up," "choked," "burned or scalded," and "threatened with a knife or gun." Participants indicated their responses on a 4-point scale (1 = *often*, 2 = *sometimes*, 3 = *rarely*, 4 = *never*). We reverse scored and summed responses to create an IPV perpetration index ( $M = 2.29$ ,  $SD = 0.63$ ). The simple correlations among model variables were as follows:  $r_{\text{IED-depletion}} = .14$ ,  $p < .001$ ;  $r_{\text{IED-IPV}} = .18$ ,  $p < .001$ ; and  $r_{\text{Depletion-IPV}} = .17$ ,  $p < .001$ .

## Results

To test whether the association of IED diagnosis with IPV perpetration was stronger among participants generally prone toward stronger depletion, we conducted an ordinary least squares regression analysis predicting frequency of IPV perpetration from IED diagnosis ( $-1 = \text{no IED diagnosis}$ ,  $1 = \text{IED diagnosis}$ ), depletion, and their interaction term. Consistent with  $I^3$  theory predictions, the IED Diagnosis  $\times$  Depletion interaction effect was significant,  $\beta = .09$ ,  $t(1589) = 2.38$ ,  $p = .017$ . (We present results from the full statistical models, including lower order terms, for all studies in the Appendix.) As depicted in Figure 2, the association of IED diagnosis (strong impellance) with increased frequency of IPV perpetration was stronger for participants prone toward high levels of depletion ( $+1 SD$ ; weak inhibition),  $\beta = .19$ ,  $t(1589) =$

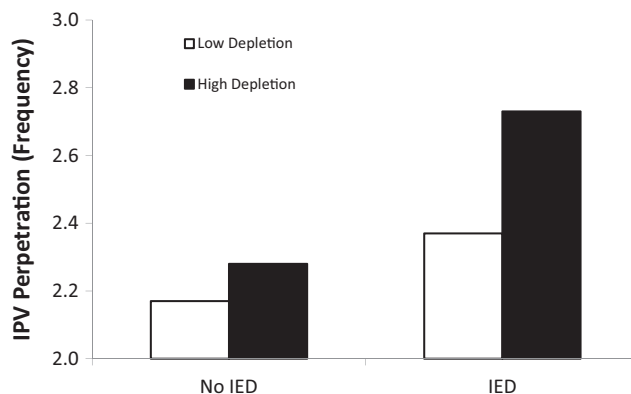


Figure 2. Study 1: Intermittent explosive disorder (IED) diagnosis, depletion, and intimate partner violence (IPV) perpetration (Impellor  $\times$  Inhibitor).

$6.29$ ,  $p < .001$ , than for participants prone toward low levels of depletion ( $-1 SD$ ),  $\beta = .09$ ,  $t(1589) = 2.28$ ,  $p = .022$ .

Next, we conducted an auxiliary analysis to rule out the alternative explanation that the depletion measure served as a proxy for general psychological distress or depressive emotion. Rather than simply controlling for the main effects of these potential confound constructs, we added two new two-way interaction terms—IED Diagnosis  $\times$  Psychological Distress and IED Diagnosis  $\times$  Depressive Tendencies—and all lower level terms to our primary two-way interaction effect model from the previous paragraph. In this extremely rigorous analysis, our crucial two-way interaction term remained significant,  $\beta = .10$ ,  $t(1583) = 1.98$ ,  $p = .048$ , whereas neither of the other two-way interaction terms approached significance (mean  $p = .717$ ).

## Discussion

Study 1 employed data from a nationally representative sample of married/cohabiting individuals, demonstrating that dispositional aggressiveness (assessed in terms of having an IED diagnosis) predicted IPV perpetration more strongly when inhibition (assessed in terms of subjective reports of depletion) was weak rather than strong. That participants reported on their actual violent behavior toward their spouse/partner offers strong external validity.

Despite Study 1's methodological strengths and clear results, however, it had notable limitations. For example, it assessed depletion over the past month but IPV perpetration over the course of the relationship. In addition, it measured all constructs at a single point in time, and it assessed depletion with a self-report measure rather than manipulating it experimentally, factors that make it difficult to draw firm conclusions about the causal moderating effects of inhibitory processes on the link between dispositional aggressiveness and IPV perpetration. Furthermore, it operationalized dispositional aggressiveness (the impellor) with a measure, IED diagnosis, that might also include some degree of disinhibition. Finally, Study 1 was mute vis-à-vis instigation. Theoretically, the Dispositional Aggressiveness  $\times$  Depletion interaction should be especially robust when instigation is strong, and, although it is plausible that the IPV assessed in Study 1 followed instigation,

clear conclusions await the results of studies that either constrain instigation to be high (as we did in Study 2) or that assess variation in instigation strength (as we did in Studies 3 and 4).

## Study 2

In Study 2, we again tested whether the association of dispositional aggressiveness with IPV perpetration would be stronger when inhibition is weak than when it is strong, this time holding instigation constant (and strong) and experimentally manipulating depletion with a standardized attention control task from the depletion literature (DeWall et al., 2007). We operationalized dispositional aggressiveness in terms of self-reported dispositional physical aggressiveness (A. H. Buss & Perry, 1992). We assessed inclinations toward IPV perpetration with a validated self-report measure from the clinical psychology literature in which participants indicated their likelihood of physically aggressing against their partner if he or she enacted a series of highly provoking behaviors (Babcock, Costa, Green, & Eckhardt, 2004).

## Method

**Participants.** Forty undergraduates (21 women), all currently involved in dating relationships, participated in the current study in partial fulfillment of the requirements for an introductory psychology course. Participants were 19.41 years old on average ( $SD = 1.20$ ) and had been with their current romantic partner for an average of 13.20 months ( $SD = 7.31$ ).

**Materials and procedures.** At study entry, participants completed a widely used, nine-item measure of *dispositional physical aggressiveness* (A. H. Buss & Perry, 1992; e.g., “I get into fights a little more than the average person”; 1 = *strongly disagree*, 7 = *strongly agree*;  $M = 3.00$ ,  $SD = 1.30$ ;  $\alpha = .86$ ), which we standardized prior to analysis ( $M = 0$ ,  $SD = 1$ ). Next, to implement the *depletion manipulation* (e.g., DeWall et al., 2007; Finkel et al., 2009; Schmeichel, Vohs, & Baumeister, 2003), participants viewed a 6-min videotape (without audio) depicting a woman being interviewed by an interviewer located off-camera. As she was interviewed, a series of common one-syllable words (e.g., *tree*) flashed at the bottom of the screen for 10 s each. By random assignment, half of the participants were assigned to the depletion condition, wherein the experimenter instructed them “not to read or look at any words that may appear on the screen” and to redirect their gaze immediately if they caught themselves looking at the words instead of the woman’s face. Insofar as attention orients automatically toward novel stimuli in the environment (e.g., Schneider & Shiffrin, 1977), being in the depletion condition required participants to exert self-control by overriding the natural tendency to orient their attention to the frequently changing words, instead maintaining their focus on the woman. Participants in the no depletion condition, in contrast, were not given any specific instructions for watching the video clip. As noted above, dispositional physical aggressiveness served as the impeller, whereas depletion served as the disinhibitor (and the structure of the PAVE measure, described next, meant that instigation was always high).

After completing the attention control task, participants reported their *inclinations toward IPV perpetration* by completing a version of the Proximal Antecedents to Violent Episodes (PAVE) Scale (Babcock et al., 2004) that was modified for dating samples

(Finkel et al., 2009). Participants reported these aggressive inclinations in response to each of 20 hypothetical instigating triggers (e.g., “My partner ridicules or makes fun of me,” “My partner does something to offend or ‘disrespect’ me”); 0 = *not at all likely to be physically aggressive*, 6 = *extremely likely to be physically aggressive*;  $M = 1.92$ ,  $SD = 0.82$ ;  $\alpha = .95$ ). The simple correlation between dispositional physical aggressiveness and inclinations toward IPV perpetration was .30 ( $p = .076$ ).

## Results

To test whether the association of dispositional physical aggressiveness with inclinations toward IPV perpetration was stronger among depleted than nondepleted participants, we conducted an ordinary least squares regression analysis predicting inclinations toward IPV perpetration from dispositional physical aggressiveness, depletion ( $-1 =$  no depletion,  $1 =$  depletion), and their interaction term. Consistent with I<sup>3</sup> theory predictions, this interaction effect was significant,  $\beta = .33$ ,  $t(37) = 2.10$ ,  $p = .040$ . As depicted in Figure 3, the association of dispositional physical aggressiveness (strong impellence) with inclinations toward IPV perpetration was stronger for depleted participants,  $\beta = .56$ ,  $t(37) = 2.91$ ,  $p = .01$ , than for nondepleted participants,  $\beta = -.05$ ,  $t(37) = -0.17$ ,  $p = .86$ .

## Discussion

Study 2 demonstrated that dispositional aggressiveness predicted inclinations toward IPV perpetration more strongly when inhibition (operationalized in terms of experimentally manipulated depletion) was weak rather than strong. The experimental depletion manipulation allows us to conclude that, relative to strong inhibition, weak inhibition *causes* the association of dispositional aggressiveness with inclinations toward IPV perpetration to be more powerful. These results once again provided strong support for the Impeller  $\times$  Inhibitor interaction effect, this time using procedures that ensured that instigation was held constant (and high) across participants.

Taken together, Studies 1 and 2 revealed evidence for this interaction effect (a) with reports of actual IPV perpetration in

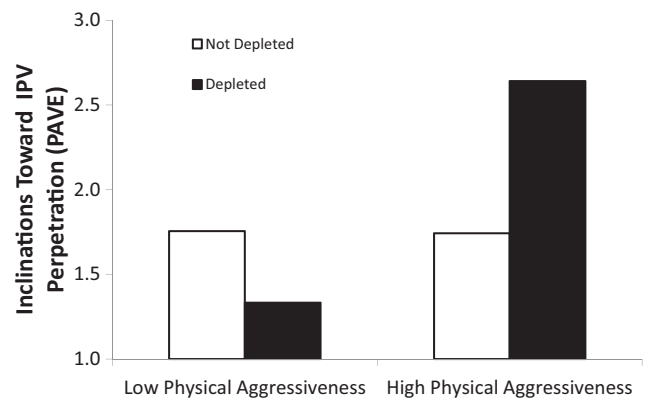


Figure 3. Study 2: Dispositional physical aggressiveness, depletion, and intimate partner violence (IPV) perpetration (Impeller  $\times$  Inhibitor). PAVE = Proximal Antecedents to Violent Episodes Scale.

everyday life (Study 1) and of inclinations toward IPV perpetration regarding concrete hypothetical instigators (Study 2), (b) with IED diagnosis (Study 1) and dispositional physical aggressiveness (Study 2) as operationalizations of dispositional aggressiveness, (c) with a nationally representative sample of married/cohabiting partners (Study 1) and a collegiate sample of dating partners (Study 2), and (d) with a self-report measure (Study 1) and an experimental manipulation (Study 2) of depletion. Despite this convergent support for our hypotheses, however, these studies had limitations. For example, both studies assessed IPV perpetration with self-reports. To be sure, self-report assessments are nearly universal in the IPV literature. Nonetheless, it would strengthen conclusions to employ a behavioral measure of aggression toward one's partner, even if ethical considerations require that such a measure would necessarily serve as an indirect proxy for actual IPV perpetration. More important, instigation was omitted from Study 1 and held constant in Study 2, which meant that neither study could examine I<sup>3</sup> theory's crucial Instigator  $\times$  Impellor  $\times$  Inhibitor interaction effect.

In Study 3, we extended beyond the first two studies in two ways. First, we employed a more precise, behavioral analog measure of IPV perpetration. Second, we assessed not only an impellor and an inhibitor but also an instigator. In addition, although we employed the same impellor measure as in Study 2 (dispositional physical aggressiveness), we used a new inhibition measure—executive control, as assessed with a version of Stroop (1935) task. In short, Study 3 was the first to include an instigator, to examine executive control as an inhibitor, and to assess IPV perpetration with a behavioral measure.

### Study 3

In Study 3, we sought evidence for I<sup>3</sup> theory's crucial Instigator  $\times$  Impellor  $\times$  Inhibitor interaction effect. Specifically, we tested whether provocation from one's partner (instigator), dispositional physical aggressiveness (impellor), and executive control (inhibitor) would interact to predict a behavioral analog measure of IPV perpetration. According to I<sup>3</sup> theory, simple effects tests should demonstrate (a) that the Dispositional Physical Aggressiveness  $\times$  Executive Control simple two-way interaction effect will be stronger when provocation is severe versus mild and (b) that, when provocation is severe, the simple effect of dispositional physical aggressiveness will be stronger when executive control is weak rather than strong.

Whereas Study 1 employed nationally representative survey methods and Study 2 employed laboratory methods, Study 3 employed daily diary methods. Participants completed intake procedures at baseline and then Internet-based diary procedures every night for the next 35 nights. We assessed dispositional physical aggressiveness (impellor) and executive control (inhibitor) at baseline. As in Study 2, we assessed dispositional physical aggressiveness with A. H. Buss and Perry's (1992) self-report measure. We assessed executive control with a previously validated version of the Stroop task (Inzlicht & Gutsell, 2007), a widely used behavioral measure tapping individual differences in executive control (Miyake et al., 2000). We assessed provocation by the partner (instigator) and our behavioral proxy for IPV perpetration (dependent measure) on the nightly diaries—provocation with a self-report measure assessing the degree to which participants felt

provoked by their partner that day and IPV perpetration with a measure in which participants determined how many pins to insert into a voodoo doll representing their partner.

Upon first impression, this voodoo doll task may seem sufficiently far removed from IPV perpetration to raise doubts about whether it can serve as a behavioral analog measure of this construct. Fortunately, scholars have amassed a large corpus of validity evidence demonstrating that the voodoo doll task does indeed function as a reasonable behavioral analog measure (DeWall et al., 2011). Before summarizing that validity evidence, however, we first present the theoretical case for why determining how many pins to insert into a voodoo doll representing one's partner has crucial properties in common with actually aggressing against him or her.

To be sure, most educated Westerners deny possessing the level of superstition required to believe that harming an abstract representation of a person has effects akin to inflicting actual physical pain upon that person. However, research suggests that many of those same educated Westerners would have a hard time sticking pins into a photograph of their mother's face. Indeed, research on magical thinking suggests that even educated people transfer characteristics of a given person onto representations of that person, making it satisfying to stab a voodoo doll representing a person who has provoked them (Denzler, Förster, & Liberman, 2009) and difficult to throw darts at a picture of the face of a person they like (Rozin, Millman, & Nemeroff, 1986; see Gendler, 2008). Indeed, educated people experience elevated physiological arousal, as assessed through electrodermal activity, when cutting up a photograph of an object that has sentimental value to them (relative to cutting up a photo of a valuable but nonsentimental object or of an unknown participant's sentimental object), an effect that emerges even when the photograph is blurred almost beyond recognition (Hood, Donnelly, Leonards, & Bloom, 2010).

A recent series of 10 studies validated the voodoo doll task as a behavioral analog measure of aggression toward both strangers and intimate partners (DeWall et al., 2011). For example, dispositionally aggressive people elect to insert more pins into the voodoo doll than do nonaggressive people. In addition, people who have been provoked by their romantic partner elect to insert more pins into a voodoo doll representing their partner than do people who have not been provoked. Furthermore, pin insertion decisions correlate with a broad range of constructs that either directly tap or correlate highly with aggression, including insulting one's partner during a problem-solving task, behaving angrily during a conflict discussion task, and blasting a close relationship partner with intense and prolonged bursts of aversive noise. Of primary relevance to the present investigation, the number of pins that individuals chose to insert during the voodoo doll task also was strongly and positively correlated with the number of aggressive acts people perpetrated against their romantic partner on the Physical Assault subscale of the Revised Conflict Tactics Scales (Straus, Hamby, Boney-McCoy, & Sugarman, 1996). As such, we used the voodoo doll task as our behavioral analog measure of IPV perpetration in Study 3.

### Method

**Participants.** Fifty-one undergraduate heterosexual couples who were romantically involved for at least 1 month participated



in exchange for \$150 (\$75 per person), and one member of each couple also earned partial fulfillment of the requirements for an introductory psychology course. We omitted one couple who broke up before the end of the study, leaving a final sample of 50 couples (100 individuals). Participants were 18.78 years old on average ( $SD = 1.17$ ) and had been with their current romantic partner for an average of 20.52 months ( $SD = 17.80$ ). Demographically, 85% percent were Caucasian, 13% were African American, and 2% identified as other.

**Materials and procedures.** Both members of each couple attended a laboratory session at baseline during which we assessed the impellor and the inhibitor. Specifically, participants completed the same nine-item measure of dispositional physical aggressiveness as in Study 2 (A. H. Buss & Perry, 1992; 1 = *extremely uncharacteristic of me*, 7 = *extremely characteristic of me*;  $M = 3.10$ ,  $SD = 1.26$ ;  $\alpha = .87$ ). They also performed a version of the Stroop task (Inzlicht & Gutsell, 2007), which served as our measure of executive control. Stroop stimuli consisted of the words *red* and *green*, presented in either red or green font. Participants were asked to press one button if the word that appeared was in red font and a second button if it was in green font. On each trial, a fixation cross (“+”) appeared for 500 ms, after which the stimulus word appeared for 2,000 ms. The maximum time allowed for a response was 2,000 ms. On congruent trials, the word *red* appeared in red font and the word *green* appeared in green font. On incongruent trials, the font color mismatched the word’s semantic meaning (e.g., *red* appeared in green font). Following one practice block, participants completed one block of 16 trials (eight congruent trials, eight incongruent trials). Mean reaction times across congruent trials and incongruent trials were computed using correct responses only. Stroop interference, which tapped poor executive control, was computed as participants’ mean reaction time on incongruent trials minus their mean reaction time on congruent trials.<sup>2</sup> Finally, at the end of this baseline session, the experimenter also explained the logistics of the 35-day diary portion of the study, for which participants would complete online procedures every evening before going to bed. On average, participants completed 22.46 diaries, yielding a total of 2,246 daily observations.

We assessed the instigator and the dependent measure as part of these nightly diary procedures. Every night, participants completed a four-item measure assessing partner provocation (e.g., “Relative to other days, over the last 24 hours how much has your partner made you feel provoked?”;  $-4 = \textit{far less than usual}$ ,  $0 = \textit{typical amount}$ ,  $4 = \textit{far more than usual}$ ;  $M = -0.79$ ,  $SD = 1.38$ ;  $\alpha = .90$ ). Finally, we assessed IPV perpetration by measuring pin insertion decisions on a computerized version of the voodoo doll task described above (DeWall et al., 2011; Slotter et al., in press). Participants viewed a picture of a doll on their computer screen, and the instructions informed them that the doll represented their partner. The instructions also informed them that they could release any negative energy they were experiencing regarding their partner by deciding how many pins to insert into the voodoo doll. In sum, partner provocation served as the instigator, dispositional physical aggressiveness served as the impellor, executive control served as the inhibitor, and pin insertion decisions on the voodoo doll task served as the dependent measure.

The correlation between dispositional physical aggressiveness and Stroop interference, the two person-level variables, was .04 ( $p = .687$ ). The simple associations of provocation with both of

these person-level variables were both .00 because the provocation variable was centered within person, which eliminated any variability across participants in mean provocation scores. The simple associations among the remaining model variables, all of which involved at least one Level 1 variable, were assessed with multilevel models in which the first term was the predictor variable and the second was the outcome variable:  $\beta_{\text{Provocation-pins}} = .12$ ,  $p = .046$ ;  $\beta_{\text{Aggressiveness-pins}} = .18$ ,  $p = .146$ ; and  $\beta_{\text{ExecCont-pins}} = -.12$ ,  $p = .395$ .

**Data analysis strategy.** Data from this study were nested in a three-level hierarchical structure, with the 35 nightly diaries nested within each partner and the two partners nested within each couple. Furthermore, the distribution of the pin insertion decisions, like many other instances of count data (in which all values are non-negative integers), had a preponderance of zeros and strong positive skew. To address these issues, we used multilevel negative binomial regression analysis with a log link function (Atkins & Gallop, 2007; Hilbe, 2007). Similar to other types of multilevel models, correlations in the data due to nesting are incorporated via random effects—here, a random intercept for repeated observation within person and a random intercept for person within couple. The model also assumes that, conditional on fixed and random effects, the outcome is negative binomial distributed, which is an appropriate model for highly skewed count data such as the present pin data. We standardized ( $M = 0$ ,  $SD = 1$ ) the two person-level predictor variables (dispositional physical aggressiveness and Stroop interference) around their grand mean, standardized the day-level predictor variable (provocation) around each person’s idiographic mean, and left pin insertion on its raw (count) metric. When predicting pin insertion decisions on a given day (“today”), we controlled for pin insertion decisions the previous day (“yesterday”) to examine day-to-day change in such behavior. In the Results section, we report the regression coefficients directly from the negative binomial regression analyses, testing simple effects 1  $SD$  above and below the means of the other predictor variable(s). When plotting the results in Figure 4, we exponentiate back to the raw metric (number of pins inserted).

## Results

To test whether the association of dispositional physical aggressiveness with a given day’s IPV perpetration was strongest among participants who both (a) experienced higher than usual levels of provocation from their partner that day and (b) were dispositionally characterized by poor executive control, we conducted a multilevel negative binomial regression analysis predicting today’s pin insertion decisions from provocation, dispositional physical aggressiveness, Stroop score, and all interaction terms involving these three variables, controlling for yesterday’s pin insertion decisions. Consistent with I<sup>3</sup> theory predictions, the Provocation  $\times$  Dispositional Physical Aggressiveness  $\times$  Stroop Interference interaction effect was significant,  $B = 0.47$ ,  $t(1716) = 4.57$ ,  $p <$

<sup>2</sup> One participant was excluded from all analyses due to having a Stroop score that was 4.8  $SD$ s from the mean; the second-most extreme case was 2.4  $SD$ s from the mean.

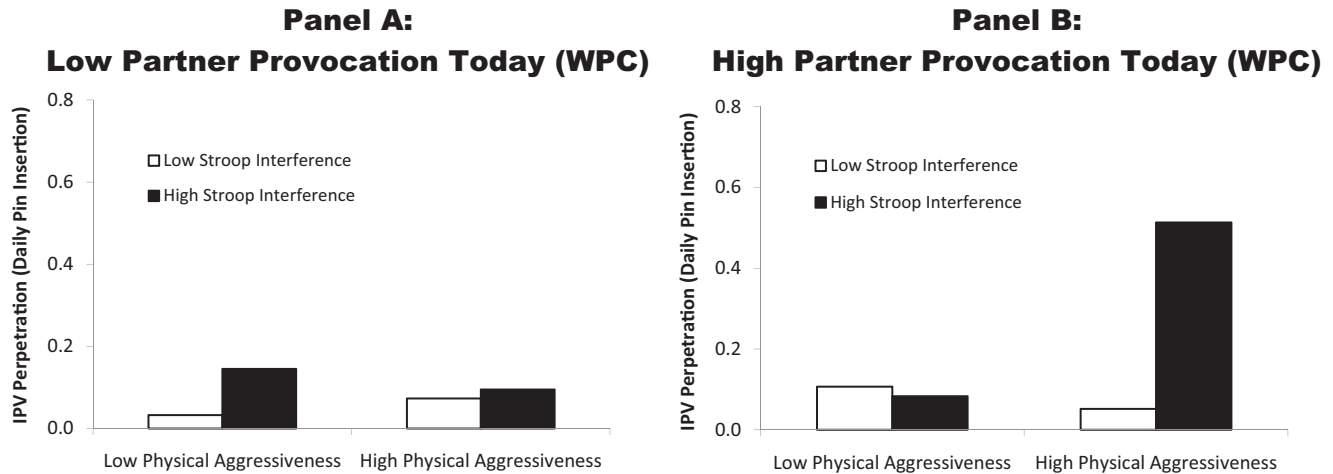


Figure 4. Study 3: Provocation, dispositional physical aggressiveness, Stroop interference, and intimate partner violence (IPV) perpetration (Instigator  $\times$  Impellor  $\times$  Inhibitor). WPC = within-person-centered.

.001.<sup>3</sup> As depicted in Figure 4, the simple Physical Aggressiveness  $\times$  Stroop Interference interaction effect was not significant on days when provocation was mild ( $-1$  *SD*, Panel A),  $B = -0.31$ ,  $t(1716) = -0.88$ ,  $p = .379$ , but, in a pattern reminiscent of that shown in Figures 2 and 3, it was (marginally) significant on days when provocation was severe ( $+1$  *SD*, Panel B),  $B = 0.64$ ,  $t(1716) = 1.87$ ,  $p = .061$ . Breaking down this simple two-way interaction effect for severe provocation days, the association of physical aggressiveness with pin insertion decisions was stronger for participants high in Stroop interference (poor executive control),  $B = 0.91$ ,  $t(1716) = 2.29$ ,  $p = .022$ , than for participants low in Stroop interference (strong executive control),  $B = -0.36$ ,  $t(1716) = -0.77$ ,  $p = .444$ .

When interpreting these effects, it is important to remember that the model-implied values in Figure 4 represent daily pin insertion decisions. It is instructive to consider these model-implied values across longer time intervals. For example, the model implies that, during a 1-month period (30 days), hypothetical participants in the perfect storm situation—strong provocation, strong dispositional physical aggressiveness, and weak executive control—would insert approximately 15.40 pins into the voodoo doll representing their partner, whereas hypothetical participants scoring at the mean of the other seven situations would insert approximately 2.52 pins.

## Discussion

Study 3 extended the results from Studies 1 and 2 by employing a behavioral analog measure of IPV perpetration and by including a measure of instigation alongside the measures of impellance and inhibition. Including measures of all three processes allowed for a test of  $I^3$  theory's Instigator  $\times$  Impellor  $\times$  Inhibitor interaction effect. In addition, complementing the inhibitors from Studies 1 and 2 (self-reported and experimentally manipulated depletion, respectively), the inhibitor in Study 3 was executive control, which we assessed with the Stroop task. Participants decided to insert the most pins on days when their partner was especially provoking, but this effect was

primarily driven by participants who were dispositionally characterized by both strong physical aggressiveness and weak executive control. Overall, despite the new inhibitor (executive control) and the behavioral analog measure of IPV (pin insertion in the voodoo doll task) in Study 3, the simple Dispositional Physical Aggressiveness (impellor)  $\times$  Stroop Interference (disinhibitor) interaction effect when provocation was high (Figure 4, Panel B) closely mirrored the results from Study 1 (Figure 2) and Study 2 (Figure 3). Although conclusions from this study would have been clearer if we had used a provocation measure that did not rely upon participants' own self-reports, our within-person-centering data-analytic strategy eliminated the most significant issue with this measurement approach—that some people (e.g., dispositionally aggressive people) might exhibit a biased perception of reality, systematically perceiving greater provocation than others would in the identical circumstances.

In Study 4, we sought to illustrate the flexibility of  $I^3$  theory by replicating the results of Study 3 with a sample of newlywed couples and with new operationalizations of instigation, impellance, and inhibition that are likely to be associated with IPV perpetration during marital interactions. In addition, we employed an instigation measure that did not depend upon participants' own self-reports. Finally, although the voodoo doll task used in Study 3 had the advantage of allowing us to use a behavioral analog measure of IPV, we tested whether the pin insertion results (Figure 4) would replicate with an IPV measure possessing more self-evident external validity—one that assessed participants' actual violent behaviors toward their spouse.

<sup>3</sup> This study also supplied data for Study 4 in Slotter et al. (2011), which demonstrated that the most pins were inserted by participants who had been strongly provoked that day, who were high in dispositional tendencies toward retaliation, and who were relatively low in commitment to their relationship. The present results remained robust ( $p < .001$ ) in an auxiliary analysis in which we controlled for the Slotter et al. three-way interaction effect and all lower order terms associated with it.

## Study 4

Complementing Studies 1–3—which used nationally representative survey, laboratory, and daily diary procedures, respectively—Study 4 investigated IPV perpetration with longitudinal methods, employing a newlywed sample of couples to examine changes in IPV perpetration over a 6-month period. This study consisted of three main parts. First, participants attended an initial laboratory session at which they completed surveys and engaged in various other tasks beyond the scope of this article. Second, shortly after this laboratory session, they completed a week-long daily diary study. Third, they completed a follow-up survey 6 months later, during which they reported how many acts of IPV they had perpetrated over the past year.

We capitalized upon this extant study by using I<sup>3</sup> theory to identify, *a priori*, variables that provided reasonably process-pure operationalizations of instigation, impellance, and inhibition. The Study 4 instigator was partner neuroticism, which we assessed with the partner's own self-report. Partner neuroticism works nicely for assessing the degree to which people are likely to encounter relatively frequent instigation because, as noted earlier, highly neurotic partners tend to enact especially provoking behavior during couple interaction (D. M. Buss, 1991; Caughlin et al., 2000; Caughlin & Vangelisti, 2000; Donnellan et al., 2004; McNulty, 2008). The Study 4 impellor was dispositional anger, which we suggest functions similarly to IED (Study 1) and dispositional physical aggressiveness (Studies 2 and 3), and which serves as a key component of the aggressive personality (A. H. Buss & Perry, 1992). The Study 4 disinhibitor was chronic psychosocial stress, which typically functions by undermining self-regulation (Baumeister et al., 1994; Muraven et al., 1998; Oaten & Cheng, 2005). This view that stress functions predominantly as a disinhibitor (not as an impellor) dovetails nicely with longstanding theoretical work suggesting that stress affects relationships by depleting the resources partners have available to regulate themselves vis-à-vis important family processes (Hill, 1949; McCubbin & Patterson, 1983).

Turning to our dependent measure, we assessed IPV perpetration with the widely used Physical Assault subscale of the Conflict Tactics Scales (Straus, 1979) at the initial laboratory session and again at the follow-up session. Both measures assessed such tendencies over the preceding 12 months. Accordingly, predicting the follow-up measure after controlling for the baseline measure allowed us to predict the number of violent acts participants perpetrated against their spouse over the intervening 6-month period.

In terms of the study's structure, we assessed (a) baseline levels of IPV perpetration (covariate) and the partner's report of his or her own neuroticism (instigator) at the initial laboratory session, (b) dispositional anger (impellor) on the daily diaries, and (c) chronic stress over the intervening 6-month period (disinhibitor) and IPV perpetration over the intervening 6-month period (dependent measure) at the 6-month follow-up. We hypothesized that partner neuroticism, dispositional anger, and chronic stress would interact to predict IPV perpetration over the 6-month period, controlling for IPV perpetration over the previous year. According to I<sup>3</sup> theory, we hypothesized that simple effects tests would demonstrate that, as in Study 3, (a) the Dispositional Anger  $\times$  Chronic Stress simple two-way interaction effect is stronger (more positive) for participants whose partner is high (vs. low) in neu-

roticism, and, (b) for participants whose partner is high in neuroticism, the simple effect of dispositional anger is stronger when chronic stress is high versus low.

## Method

**Participants.** Participants were drawn from a sample of 72 first-married couples participating in a broader study of marital development. They were first assessed within 6 months after the wedding ( $M = 3.18$ ,  $SD = 1.61$ ). Fifteen couples were excluded because they failed to participate in the daily diaries (four couples) or in the follow-up procedure (11 couples), leaving a final sample of 57 couples. We used two methods to recruit this community sample of participants. First, we placed advertisements in community newspapers and bridal shops offering payment to couples willing to participate in a longitudinal study of newlyweds. Second, we sent invitations to eligible couples who had completed marriage license applications in counties near the study location. All couples responding to either solicitation were screened for eligibility in an initial telephone interview. Inclusion required that (a) this was the first marriage for each partner, (b) the couple had been married less than 6 months, (c) each partner was at least 18 years of age, (d) and each partner spoke English and had completed at least 10 years of education (to ensure comprehension of the questionnaires). At baseline, the husbands analyzed here were on average 25.09 years old ( $SD = 4.58$ ) and had completed 14.35 years of education ( $SD = 2.57$ ), and the wives analyzed here were 24.02 years old ( $SD = 4.03$ ) and had completed 14.88 years of education ( $SD = 2.36$ ). Demographically, 97% were Caucasian, 2% were African American, and 1% identified as other.

**Materials and procedures.** Before attending an in-laboratory baseline session, we mailed couples a packet of questionnaires to complete at home and bring with them to their session. This packet included the baseline measure of IPV perpetration (described below), a measure of neuroticism, and a letter instructing participants to complete all questionnaires independently and to bring their completed questionnaires to their upcoming laboratory session. To assess neuroticism, spouses reported their agreement with each item from Goldberg's (1999) 10-item measure. Example items included "I get irritated easily," "I am easily disturbed," and "I have frequent mood swings" (1 = *strongly disagree*, 5 = *strongly agree*;  $M = 27.06$ ,  $SD = 8.62$ ;  $\alpha = .74$ ).

At this in-laboratory baseline session, we gave each spouse seven stamped, addressed envelopes, each containing a 1-page questionnaire that assessed the degree to which they had experienced anger that day (1 = *not at all*, 5 = *a lot*;  $M = 3.03$ ,  $SD = 1.46$ ;  $\alpha = .95$ ); the extremely high day-to-day reliability of this measure lends credence to our decision to conceptualize the mean of these seven daily reports as a dispositional measure. To allow us to test certain alternative explanations of our effects, we also assessed participants' satisfaction with their partner that day (1 = *not at all*, 7 = *extremely*;  $M = 6.28$ ,  $SD = 0.74$ ;  $\alpha = .87$ ). Spouses were instructed to (a) complete each page independently every night for the next 7 nights, (b) seal each completed questionnaire in the envelope, and (c) place the sealed envelope in the mail the following day.

Approximately 6 months later, we re-contacted the couples by phone or e-mail and again mailed them a packet of questionnaires, a postage-paid return envelope, and a letter of instruction remind-

ing couples to complete the questionnaires independently from the partner. The packet of questionnaires included a measure of stress experienced over the previous 6 months and the same measure of IPV perpetration as assessed at baseline. To allow us to test additional alternative explanations of our effects, we also assessed participants' relationship satisfaction over the previous 6 months. To assess stress, spouses reported the degree to which they experienced stress in up to 13 life domains over the preceding 6 months (e.g., finances, work, health, relationship with parents; 1 = *not at all stressful*, 9 = *extremely stressful*;  $M = 3.59$ ,  $SD = 1.25$ ).<sup>4</sup> To assess IPV perpetration, participants completed the Physical Assault subscale of the Conflict Tactics Scales (Straus, 1979), on which they indicated how frequently they had enacted each of seven violent behaviors against their spouse over the previous year (1 = *never*, 2 = *once*, 3 = *twice*, 4 = *more*; we coded "more" with the conservative value of three violent behaviors and then summed across all seven behaviors). The items were as follows: "threw something at spouse"; "pushed, grabbed, or shoved spouse"; "slapped spouse"; "kicked, bit, or hit with a fist"; "hit or tried to hit spouse with something"; "beat up the spouse"; "threatened with a knife or gun"; and "used a knife or gun." To assess IPV victimization (i.e., how many times the partner reported that he or she had perpetrated violent acts against the participant), participants also reported how many times their partner had perpetrated these same acts against them. Finally, to assess relationship satisfaction (Time 2 report), spouses completed the six-item Quality Marriage Index (Norton, 1983), which includes five items on a 7-point scale (e.g., "We have a good marriage"; 1 = *very strong disagreement*, 7 = *very strong agreement*) and one item on a 10-point scale ("All things considered, how happy are you in your marriage?"; 1 = *very unhappy*, 10 = *perfectly happy*; overall  $M = 40.14$ ,  $SD = 5.78$ ;  $\alpha = .95$ ). The simple associations among primary model variables, as assessed with multilevel models in which the first term is the predictor variable and the second is the outcome variable, were as follows:  $\beta_{\text{PartNeuroticism-anger}} = .40$ ,  $p < .001$ ;  $\beta_{\text{PartNeuroticism-stress}} = -.01$ ,  $p = .920$ ;  $\beta_{\text{PartNeuroticism-IPVPerp}} = .10$ ,  $p = .279$ ;  $\beta_{\text{Anger-stress}} = -.00$ ,  $p = .967$ ;  $\beta_{\text{Anger-IPVPerp}} = .03$ ,  $p = .718$ ; and  $\beta_{\text{Stress-IPVPerp}} = .14$ ,  $p = .143$ .

**Data analysis strategy.** Data from this study were nested in a two-level hierarchical structure, with the two partners nested within each couple. Furthermore, the distribution of number of violent acts, like many other instances of count data, had a preponderance of zeros and strong positive skew. As in Study 3, we addressed these issues by conducting multilevel negative binomial regression analyses with a log link function (Atkins & Gallop, 2007; Hilbe, 2007). We standardized the three predictor variables, all of which were person level, and we left the number of violent acts on its raw (count) metric. In the Results section, we report the regression coefficients directly from the negative binomial regression analyses; when plotting the results in Figure 5, we exponentiate back to the raw metric (number of violent acts).

## Results

To test whether the association of dispositional anger with IPV perpetration was strongest among participants who both (a) had a highly neurotic partner and (b) experienced elevated levels of stress, we conducted a multilevel negative binomial regression analysis predicting the number of violent acts reported at the

follow-up assessment from partner neuroticism, dispositional anger, stress, and all interaction terms involving these three variables—controlling for the number of violent acts reported at the baseline assessment. Consistent with I<sup>3</sup> theory predictions, the Partner Neuroticism  $\times$  Dispositional Anger  $\times$  Stress interaction effect was significant,  $B = 0.55$ ,  $t(49) = 2.16$ ,  $p = .036$ . As depicted in Figure 5, the simple Dispositional Anger  $\times$  Stress interaction effect was not significant when provocation was mild ( $-1$  SD, Panel A),  $B = -0.57$ ,  $t(49) = -1.35$ ,  $p = .182$ , but, in a pattern reminiscent of Figures 2, 3, and 4B, it was (marginally) significant when provocation was severe ( $+1$  SD, Panel B),  $B = 0.54$ ,  $t(49) = 1.72$ ,  $p = .093$ . Breaking down this simple two-way interaction effect within high partner neuroticism, the association of dispositional anger with IPV perpetration was stronger for participants experiencing high stress,  $B = 1.62$ ,  $t(49) = 2.62$ ,  $p = .012$ , than for participants experiencing low stress,  $B = 0.55$ ,  $t(49) = 2.03$ ,  $p = .048$ .

Next, we conducted a set of auxiliary analyses to rule out two alternative explanations: (a) that the daily reports of anger (averaged to form our measure of dispositional anger) served as a proxy for poor relationship functioning during the diary period and (b) that the Time 2 report of stress served as a proxy for either poor relationship functioning or even IPV victimization over the preceding 6 months. Rather than simply controlling for the main effects of these potential confound constructs, we added three new three-way interaction terms (and all lower level terms) to our the model described in the previous paragraph. This model, which predicted IPV perpetration at Time 2 controlling for IPV perpetration at Time 1, had 20 predictor terms, including our crucial three-way interaction term—Partner Neuroticism  $\times$  Dispositional Anger  $\times$  Stress—and the three three-way interaction terms built to test potential alternative explanations for our constructs: (a) Partner Neuroticism  $\times$  Partner Satisfaction (averaged daily measure)  $\times$  Stress, (b) Partner Neuroticism  $\times$  Dispositional Anger  $\times$  Marital Satisfaction (Time 2), and (c) Partner Neuroticism  $\times$  Dispositional Anger  $\times$  IPV Victimization. In this extremely rigorous analysis, our crucial three-way interaction term remained significant,  $B = 0.73$ ,  $t(1, 36) = 2.15$ ,  $p = .039$ , whereas none of the other three-way interaction terms approached significance (mean  $p = .674$ ).

## Discussion

Study 4 replicated the results of Study 3 with new operationalizations of the instigator, the impellor, the inhibitor, and the dependent measure. An analysis predicting actual acts of IPV perpetration, controlling for previous acts of IPV perpetration, yielded strong support for I<sup>3</sup> theory's Instigator  $\times$  Impellor  $\times$  Inhibitor interaction effect. Participants perpetrated a larger number of violent acts when partner neuroticism and dispositional anger were strong and when psychosocial stress was strong, a pattern of results that was robust beyond multiple measures of relationship satisfaction and a measure of IPV victimization. Overall, even though Study 4 employed new operationalizations of

<sup>4</sup> Three of these items pertained to stress relevant to the marriage (e.g., spouse's health). Hypothesis tests yielded identical conclusions in auxiliary analyses omitting these three items from the stress measure.

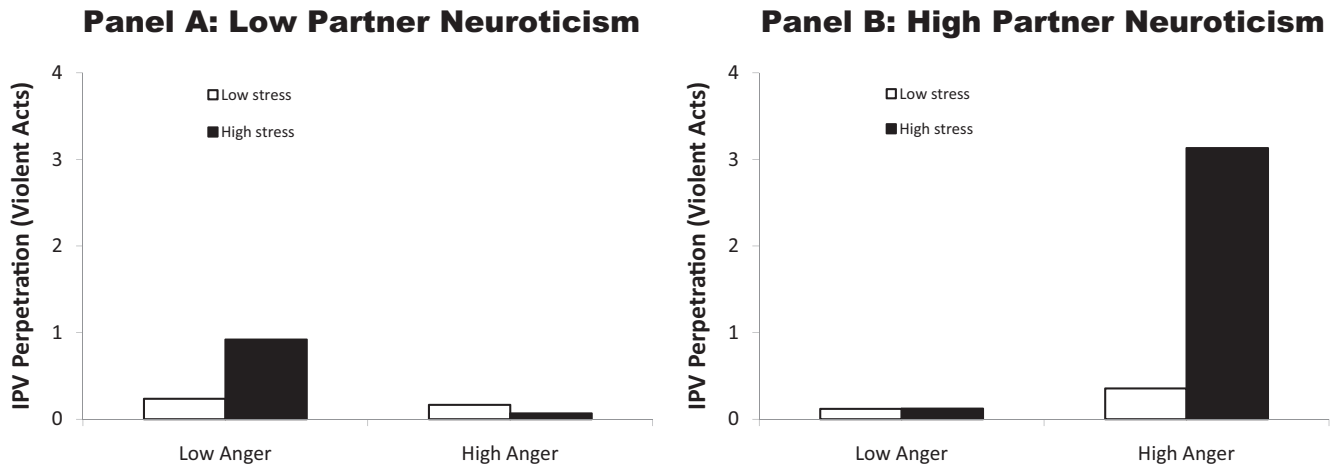


Figure 5. Study 4: Partner neuroticism, dispositional anger, psychosocial stress, and intimate partner violence (IPV) perpetration (Instigator  $\times$  Impellor  $\times$  Inhibitor).

instigation, impellance, and inhibition, the simple Dispositional Anger (impellor)  $\times$  Depletion (inhibitor) interaction effect when provocation was high (Figure 5, Panel B) closely mirrored the results from Study 1 (Figure 2) and Study 2 (Figure 3) and the high-provocation results from Study 3 (Figure 4, Panel B).

One inelegant methodological feature of Study 4 was that the baseline and follow-up IPV measures assessed perpetration over the preceding 12 months, whereas participants completed these measures only 6 months apart. Ideally, the IPV measures would have assessed IPV perpetration over the preceding 6 months rather than the preceding 12 months. That said, although we acknowledge this inelegance, we also emphasize that there is no reason to believe that it undermines our results. If anything, it should have limited our ability to detect significant effects that actually exist because some of the violent acts assessed on the follow-up measure would have already been assessed on the baseline measure (due to the 6-month overlap in time span across the two measures), which was a control variable. As such, with this statistical control in place, the unique information assessed on the follow-up measure functionally tapped the 6 months between the baseline and the follow-up.

### General Discussion

Scholars have identified a huge corpus of IPV risk factors over the past 40 years, but the IPV literature lacks a coherent theoretical model that identifies the processes through which risk factors promote IPV. Deriving hypotheses from I<sup>3</sup> theory, four studies examined moderators of the link between dispositional aggressiveness and IPV perpetration. Studies 1 and 2 demonstrated that this link is more robust when inhibition is strong rather than weak. Studies 3 and 4 demonstrated that it was especially robust when inhibition and instigation are strong—the Dispositional Aggressiveness  $\times$  Inhibition interaction effect mirrored the effects from Studies 1 and 2 when instigation was strong (Figures 2, 3, 4B, and 5B), but not when instigation was weak (Figures 4A and 5A).

The consistency of these results is striking when one considers the diversity of the studies. They included a nationally representative survey (Study 1), a laboratory experiment (Study 2), a

35-day diary study (Study 3), and a longitudinal study of newlywed couples (Study 4). They assessed IPV perpetration with reports of actual violent behavior toward one's spouse (Studies 1 and 4), with a behavioral intention measure in response to standardized provocations (Study 2), and with a behavioral analog measure (Study 3). They assessed dispositional aggressiveness (the impellor) with an interview-based clinical diagnosis of intermittent explosive disorder (Study 1), with a self-report measure of dispositional physical aggressiveness (Studies 2 and 3), and with the mean of daily reports of experienced anger (Study 4). They assessed inhibition with three different operationalizations of depletion (self-reported fatigue in Study 1, an experimental manipulation in Study 2, and self-reported stress in Study 4) and with the Stroop task as an operationalization of executive control (Study 3). They assessed instigation with a self-report measure of daily provocation (Study 3) and with the partner's self-report of his or her own dispositional neuroticism (Study 4). In short, as presented in Table 1, we assessed I<sup>3</sup> theory's three processes—instigation, impellance, and inhibition—with four unique constructs and nine unique operationalizations. Despite this methodological diversity, the results told a coherent, unified story: The association of dispositional aggressiveness with IPV perpetration was stronger when inhibition was weak rather than strong, especially in the presence of strong instigation; indeed, when inhibition was strong or instigation was weak, dispositional aggressiveness frequently failed to predict perpetration at all.

### Implications

The present studies have potentially important implications for IPV scholarship. For example, they serve as an important reminder that even robust risk factors for IPV perpetration must be conceptualized as merely part of a broader conceptual puzzle. For example, although dispositional aggressiveness is inarguably a strong predictor of IPV perpetration, its predictive power is sporadic when inhibition is strong. Indeed, when inhibition was strong (low depletion or high executive control), the simple effect of IED diagnosis was significant in Study 1 and the simple effect of dispositional anger was significant in Study 4 (when partner neu-

roticism was high), but the simple effects of dispositional physical aggressiveness failed to approach significance in Studies 2 and 3. In short, although the present results confirm that dispositional aggressiveness is an important predictor of IPV perpetration, other circumstances (such as the presence of inhibiting forces) substantially alter the magnitude of this link, sometimes eliminating it altogether. It is plausible that the effects of other important risk factors for IPV perpetration are also readily eliminated under theoretically sensible circumstances. The field may benefit from directing some effort away from adding additional risk factors to the huge corpus of established risk factors and toward establishing the processes through which particular risk factors exert their effects and identifying how risk factors interrelate.

In addition, Studies 3 and 4, the two studies that included an instigator alongside an impeller and an inhibitor, highlight the importance of I<sup>3</sup> theory's "perfect storm" analysis (see Figure 1). In Study 3 (see Figure 4), a hypothetical participant completing the mean number of diaries (22.46) in the perfect storm situation (high provocation, high dispositional physical aggressiveness, low executive control) elected to insert over 6 times more pins (11.53) during the course of the study than a hypothetical participant at the mean of the other seven situations (1.88; range = 0.73 to 3.26). In Study 4 (see Figure 5), a hypothetical participant in the perfect storm situation (highly neurotic partner, high dispositional anger, high stress) perpetrated over 11 times more violent acts (3.13) by the follow-up IPV assessment (controlling for the initial IPV assessment) than a hypothetical participant at the mean of the other seven situations (0.28; range = 0.07 to 0.92). This pattern of results emphasizes the importance of incorporating instigating, impelling, and inhibiting factors into theoretical and empirical analyses of IPV perpetration—a point that is underscored by the significant three-way interaction effects in both studies. Although main effects and two-way interaction effects have value, the full picture emerges only once scholars take account of all three of I<sup>3</sup> theory's key processes.

This perfect storm analysis could have promising implications for treating and preventing IPV perpetration, as it suggests that reducing the impact of just one of I<sup>3</sup> theory's three processes yields substantial reductions in IPV perpetration. As the present results revealed, people perpetrate much more IPV when all three processes—strong instigation, strong impellance, and weak inhibition—are present than when just one of them is absent. For example, even dispositionally physically aggressive people with weak executive control are nonviolent when they do not feel provoked by their partner (Figure 4), and even dispositionally angry people with a partner who is prone toward provoking behavior are nonviolent when they are not feeling stressed (Figure 5). Although comprehensively targeting any one process through clinical or legal intervention will be a challenge (the real world is much more complex than any study can be, with each process determined not by a single crucial variable but by the combination of many variables), therapists or policymakers might consider prioritizing this targeted approach rather than employing more comprehensive intervention strategies seeking to address everything at once. The present theoretical research provides preliminary support for the idea that this targeted approach might be sufficient for reducing IPV perpetration.

## Limitations, Future Directions, and Strengths

The present research possessed several limitations. First, two of the simple effects were marginally significant ( $p < .10$ ) rather than fully significant ( $p < .05$ ). However, although the results surely would have been cleaner if those effects had reached  $p < .05$ , the overall pattern of results across studies was remarkably consistent. Indeed, if one considers all of the important hypothesis tests across the four studies—the four highest order interaction effects (one for each study), the two simple Dispositional Aggressiveness  $\times$  Inhibitor interaction effects at high provocation (one for Study 3 and one for Study 4), and the four simple associations of dispositional aggressiveness with IPV perpetration when inhibition was weak (and, for Studies 3 and 4, when instigation was strong)—eight of the 10 analyses were significant ( $p < .05$ ), and the other two were marginally significant ( $p < .10$ ); that is, all 10 of them were at least marginally significant.

Second, given I<sup>3</sup> theory's definition of instigation as a normative process, characterizing the experience of the typical person confronting that specific instigator in that specific context, it would have been nice for the provocation assessments in Studies 3 or 4 to employ objective measures. To be sure, the within-person-centered measure of provocation in Study 3 and the partner's report of his or her neuroticism in Study 4 rule out the most straightforward limitations associated with using participant reports rather than objective measures. In particular, they rule out the possibility that dispositionally aggressive people (or people characterized by poor executive control or high stress) systematically misinterpret their partner's objectively benign behavior as provoking. Nonetheless, employing objective assessments of instigation (through experimental manipulation, objective coding of actual conflict behavior, etc.) would represent an important advance beyond the present studies.

Third, the present work did not delve deeply into the dyadic context of IPV. Although Study 2 squarely situated inclinations toward IPV in the context of relationship conflict (including physically aggressive conflict; e.g., "My partner is physically aggressive towards me first") and Studies 3 and 4 directly tested the importance of partner provocation (instigation) in predicting IPV perpetration, all of the impellers or inhibitors in the present studies were assessed at the level of the individual perpetrator (see Table 1). One important direction for future research is to integrate I<sup>3</sup> theory with a more sophisticated analysis of the dyadic context of IPV, with a particular emphasis on how mutual violence can escalate rapidly within a given episode.

The present research also possessed several strengths. First, as observed previously, the package of studies exhibited enormous methodological diversity in terms of design and assessment procedures. In addition to the points emphasized previously, we note that the studies employed a blend of self-report and behavioral dependent measures, self-reports and partner-reports of key constructs, experimental and nonexperimental designs, subjective (self-report) and objective (e.g., Stroop) assessments, and so forth.

Second, despite this methodological diversity, the results were remarkably consistent across studies. In the presence of instigation (Figures 3, 4B, and 5B), dispositional aggressiveness strongly predicted IPV perpetration when inhibition was weak, but this link was weak or nonexistent when inhibition was strong. Study 1, the nationally representative survey study, did not assess instigation,

but the pattern of results was consistent with the view that these participants sometimes face instigation in their marital interactions and therefore exhibit a similar pattern of results to those in Studies 2–4 (see Figure 2). (The large sample size in Study 1 presumably helped us detect the IED  $\times$  Depletion interaction effect even without including information about instigation.)

Third, that the results were robust despite the varying operationalizations of I<sup>3</sup> theory's key processes across studies highlights the power of the theory to serve as an organizing framework for a broad range of specific effects within the IPV literature. Once scholars can use either theory or data to identify process-pure risk factors—that is, risk factors that predominantly promote IPV perpetration through only one of the three processes—I<sup>3</sup> theory can provide them with a broad range of immediately testable hypotheses. For example, the present research focused on depletion and executive control as (dis)inhibitors, but many other variables (e.g., alcohol consumption, beliefs that violent behavior will be punished) may also moderate the link between dispositional aggressiveness and IPV perpetration in comparable ways. Similarly, other impellers (e.g., testosterone, narcissism) presumably interact with instigators and inhibitors in a manner similar to the way dispositional aggressiveness did in the present studies.

## Conclusion

Dispositional aggressiveness is an important risk factor for IPV perpetration, but previous research has not sufficiently established the circumstances under which this link is strong versus weak. Deriving hypotheses from I<sup>3</sup> theory, the present studies demonstrated that the link is strong when inhibition is weak (when depletion is strong or executive control is weak) but that it is weak or nonexistent when inhibition is strong. This interaction involving dispositional aggressiveness and inhibitory factors is further moderated by the level of instigation, with IPV perpetration being highest when instigation and impellance are strong and inhibition is weak; when even just one of these processes trends in the opposite direction, IPV perpetration is much lower, a fact that potentially holds promise for novel interventions designed to reduce the frequency of IPV perpetration.

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## Appendix

### Full Results From the Key Regression Analysis for the Four Studies

Variable	B	t	df	p
Study 1				
Physical aggressiveness (IED diagnosis)	0.14	5.48	1, 1589	<.001
Depletion	0.18	4.54	1, 1589	<.001
<b>Physical Aggressiveness × Depletion</b>	<b>0.09</b>	<b>2.38</b>	<b>1, 1589</b>	<b>.017</b>
Study 2				
Physical aggressiveness	0.32	2.08	1, 37	.05
Depletion	0.12	0.77	1, 37	.44
<b>Physical Aggressiveness × Depletion</b>	<b>0.33</b>	<b>2.14</b>	<b>1, 37</b>	<b>.04</b>
Study 3				
Provocation	0.24	3.78	1, 1716	<.001
Physical aggressiveness	0.18	0.69	1, 1716	.490
Stroop interference	0.48	1.57	1, 1716	.118
Provocation × Aggressiveness	0.09	1.15	1, 1716	.251
Provocation × Stroop	0.04	0.46	1, 1716	.644
Aggressiveness × Stroop	0.16	0.50	1, 1716	.620
<b>Provocation × Aggressiveness × Stroop</b>	<b>0.47</b>	<b>4.57</b>	<b>1, 1716</b>	<b>&lt;.001</b>
Yesterday's pin insertion	0.00	0.26	1, 1716	.798
Study 4				
Partner neuroticism	0.24	0.87	1, 49	.390
Physical aggressiveness	0.17	0.60	1, 49	.554
Stress	0.33	1.52	1, 49	.134
Partner Neuroticism × Aggressiveness	0.91	2.80	1, 49	.007
Partner Neuroticism × Stress	0.22	0.84	1, 49	.407
Aggressiveness × Stress	−0.01	−0.05	1, 49	.957
<b>Partner Neuroticism × Aggressiveness × Stress</b>	<b>0.55</b>	<b>2.16</b>	<b>1, 49</b>	<b>.036</b>
Time 1 IPV perpetration	0.42	4.90	1, 49	<.001

*Note.* The bolded terms represent the crucial interaction effects for testing the I<sup>3</sup> theory-derived hypotheses. IED = intermittent explosive disorder; IPV = intimate partner violence.

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