Available online at www.sciencedirect.com

ScienceDirect

Current Opinion in Psychology

# The $I^3$ Model: a metatheoretical framework for understanding aggression

Eli J Finkel and Andrew N Hall

The *$I^3$ Model* is a general-purpose metatheory. It posits that three orthogonal processes influence the likelihood and intensity of a given behavior, including aggressive behavior. *Instigation* encompasses immediate environmental stimuli (*e.g.*, provocation) that normatively afford an aggressive response. *Impellance* encompasses situational or dispositional qualities (*e.g.*, trait aggressiveness) that influence how strongly the instigator produces a proclivity to enact that response. *Inhibition* encompasses situational or dispositional qualities (*e.g.*, alcohol intoxication) that influence how strongly the proclivity is overridden rather than manifesting in aggressive behavior. Extant evidence supports *Perfect Storm Theory*—a theoretical perspective derived from the $I^3$ Model—which posits that aggression is especially likely, and especially intense, to the extent that instigation and impellance are strong and inhibition is weak.

**Address**
Northwestern University, Evanston, IL, USA

Corresponding author: Finkel, Eli J (finkel@northwestern.edu)

**Current Opinion in Psychology** 2017, **19**:125–130

This review comes from a themed issue on **Aggression and violence**

Edited by **Brad J Bushman**

http://dx.doi.org/10.1016/j.copsyc.2017.03.013

2352-250X/© 2017 Elsevier Ltd. All rights reserved.

On a drunken night in 1947, Arthur Koestler threw a bar glass at Jean-Paul Sartre's head. The two men—both intellectual titans in postwar Europe—had grown increasingly irritated with each other over hours of political debate. But irritation alone was not sufficient to trigger Koestler's violence; as best we can tell, the event that precipitated the bar glass incident was Sartre's attempt to seduce Koestler's wife right there at their shared table [1]. It seems that this perfect storm of forces—Sartre's attempt at seduction, along with the hours of political debate and alcohol consumption that preceded it—combined to produce Koestler's aggressive act. Had any of these forces differed (if they had debated politics over coffee instead of alcohol, for example), the interaction might have concluded without aggression, even if Sartre had still tried to seduce Koestler's wife.

## The $I^3$ Model and aggression

The $I^3$ Model (pronounced 'I-cubed model') is a metatheoretical framework for understanding an individual's behavior regarding a given target object in a particular context, such as Koestler's aggression toward Sartre following the latter's seduction efforts. The model posits that three processes operate to produce behavior: instigation and impellance serve to increase the likelihood or intensity of aggression, whereas inhibition serves to decrease the likelihood or intensity of aggression.

The three processes are akin to forces or vectors—they represent the net strength of all relevant variables at play in a given situation. *Instigation*, for example, represents the net strength of the immediate environmental stimuli that normatively afford a proclivity to aggress [2••]. Such a proclivity is normative in the sense that it is a typical reaction to these stimuli in this context. In postwar Europe, as in most other contexts, witnessing another man try to seduce one's wife normatively renders aggression relevant, at least relative to witnessing the man shake one's wife's hand, for example. Other variables that normatively trigger a proclivity to aggress include social rejection [3–5], physical provocation [6,7•], and verbal provocation [8,9].

Given the importance of subjective construals [10], it is easy to forget that stimuli have objective properties, including how strongly they trigger a proclivity to aggress. Consider a study in which participants rated the offensiveness of a series of verbal statements [11]. Participants achieved reasonably broad consensus that, for example, "Keep trying, you can do better" is less offensive than "I'm kicking your sorry ass." Stimuli that produce consensus ratings of high offensiveness are strong instigators of the proclivity to aggress.

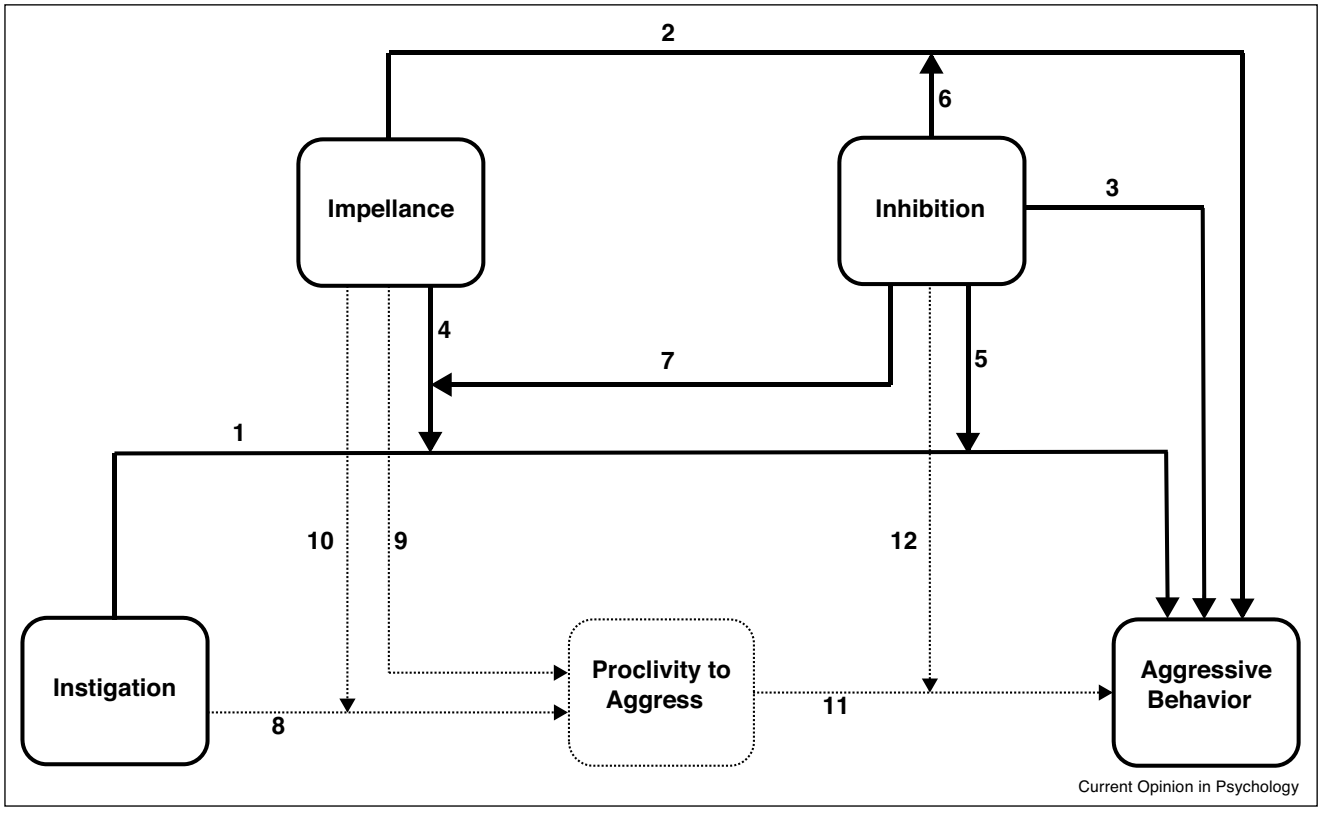
*Impellance* represents the net strength of situational or dispositional qualities that influence how strongly the instigator, for this individual in this situation, fosters a proclivity to aggress [2••]. It seems likely that Koestler's proclivity to aggress in response to Sartre's efforts at seduction were stronger because of the preceding political disputes than they would have been if the two men had instead spent those hours in convivial revelry. Other variables that contribute to impellance strength include

the dark tetrad of personality variables (Machiavellianism, narcissism, psychopathy, and sadism) [12,13], trait anger and hostile rumination [14,15,16•], and the presence of a weapon [17,18].

*Inhibition* represents the net strength of situational or dispositional qualities that influence how strongly the proclivity to enact an aggressive response manifests in aggressive behavior—how strongly this individual, in this situation, acts upon the proclivity to aggress rather than inhibiting that proclivity in favor of nonaggressive responding [2]. It seems likely that Koestler's inclination to override his proclivity to aggress against Sartre was weaker than usual because he (Koestler) was drunk rather than sober. Other variables that contribute to inhibition strength include self-control [19,20], frontal lobe functioning [21], and psychological commitment to the relationship with the potential target of the aggressive behavior [22,23].

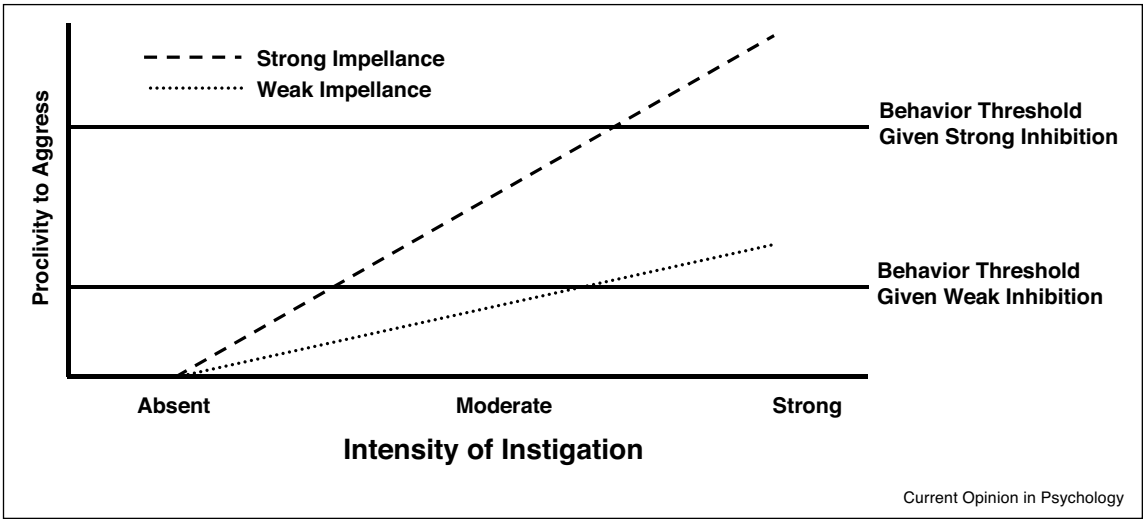
Figure 1 depicts the associations of Instigation (Path 1), Impellance (Path 2), and Inhibition (Path 3) with aggressive behavior. It also depicts the nine other causal arrows that researchers might wish to investigate in light of the preceding conceptual analysis of the $I^3$ Model. Path 4 represents an instigator × impellor effect, as when the effect of provocation (instigator) on aggression is stronger among people with stronger narcissistic tendencies (impellor) [8]. Path 5 represents an instigator × inhibitor effect, as when the effect of provocation (instigator) on aggression is weaker among people with stronger frontal lobe functioning (inhibitor) [21]. Path 6 represents an impellor × inhibitor effect, as when the association of trait aggressiveness (impellor) on aggression is weaker among people who are sober rather than drunk (inhibitor) [24]. Path 7 represents an instigator × impellor × inhibitor effect, which is the focus of the next section. Paths 8–12 represent the ways in which the model's key mediating process—proclivity to

**Figure 1**




The $I^3$ Model's 12 paths. Paths 1–7 (solid lines) represent the model's core main and interactive effects, whereas paths 8–12 (dotted lines) represent its mediation effects. Paths 1–3 represent the main effects of instigation, impellance, and inhibition, respectively. Paths 4–6 represent the 2-way interaction effects: instigation × impellance (path 4), instigation × inhibition (path 5), and impellance × inhibition (path 6). Path 7 represents the instigation × impellance × inhibition 3-way interaction effect. Paths 8 and 9 represent the links of instigation and impellance, respectively, with the behavioral proclivity (the mediator). Path 10 represents the moderation of path 8 by impellance. Path 11 represents the link between the behavioral proclivity and the actual enactment of the behavior. Path 12 represents the moderation of path 11 by inhibition. Figure adapted from Finkel [2••].

**Figure 2**




Perfect Storm Theory.
Figure adapted from Finkel [2••].

aggress—connects instigation, impellance, and inhibition to aggressive behavior.

## Perfect Storm Theory

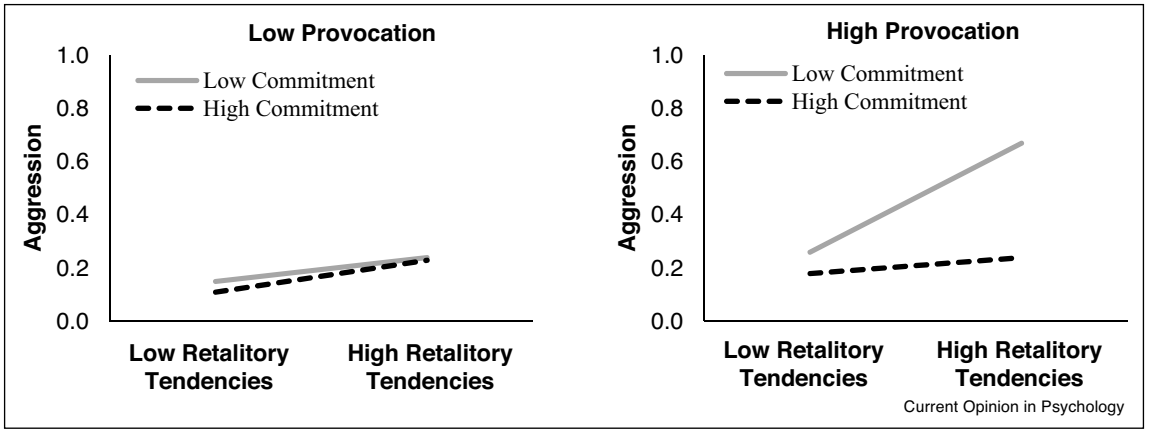
As a metatheory, the key function of the I³ Model is "to serve as a general framework for guiding the development of interesting research questions and novel theorizing about the causes of behavior," including aggressive behavior [2••, p. 3]. It presents a set of assumptions about the causes of behavior in order to impose conceptual coherence and highlight potentially stimulating topics for research. As with other metatheories, including the Diathesis–Stress Model in clinical psychology [25] and the Cognitive-Affective Processing System Model in social-personality psychology [26], the I³ Model's assumptions are background beliefs that are stipulated as true rather than developed as falsifiable tenets. They serve as a foundation on which scholars can build theories.

From its inception, the I³ Model has been linked to *Perfect Storm Theory*, one particular theoretical perspective that can be derived from it. Indeed, the early papers on the I³ Model inadvertently conflated the metatheory and the theory [*e.g.*, 27–29]. It wasn't until the first definitive statement of the I³ Model [2••] that the metatheoretical and theoretical perspectives were explicitly separated. In contrast to metatheories, theories encompass sets of principles that can help to explain and predict observable phenomena [30]. These principles represent statements about the nature of reality that help scholars develop falsifiable hypotheses. Perfect Storm Theory "posits, straightforwardly, that an individual is especially likely to enact a given behavior in a given context when instigation and impellance are strong and inhibition is weak" [2••, p. 3]. Figure 2 illustrates a prototypical instantiation of these ideas. It suggests (a) that instigation and impellance interact to predict the strength of the proclivity to aggress, and (b) that the proclivity to aggress will manifest in aggressive behavior to the extent that the inhibition of that proclivity is weaker than the proclivity itself [2••,16•,28,29,31].

Consider a study investigating the interactive effects of provocation (instigator), trait retaliatory tendencies (impellor), and relationship commitment (inhibitor) on aggression toward a current romantic partner [23]. At the intake session for this 35-day diary study, participants self-reported their retaliatory tendencies on an instrument consisting of items like "I think about how to even the score when my partner wrongs me." On each diary questionnaire, they reported how provoking their partner was that day and how committed they felt to their relationship that day, and they also chose how many pins to insert into a doll representing their partner (the measure of aggressive behavior). As illustrated in Figure 3, results aligned with Perfect Storm Theory's 3-way interaction effect prediction, yielding especially high levels of aggression when, on a given day, people high in retaliatory tendencies endured strong provocation and felt weak relationship commitment.[1]

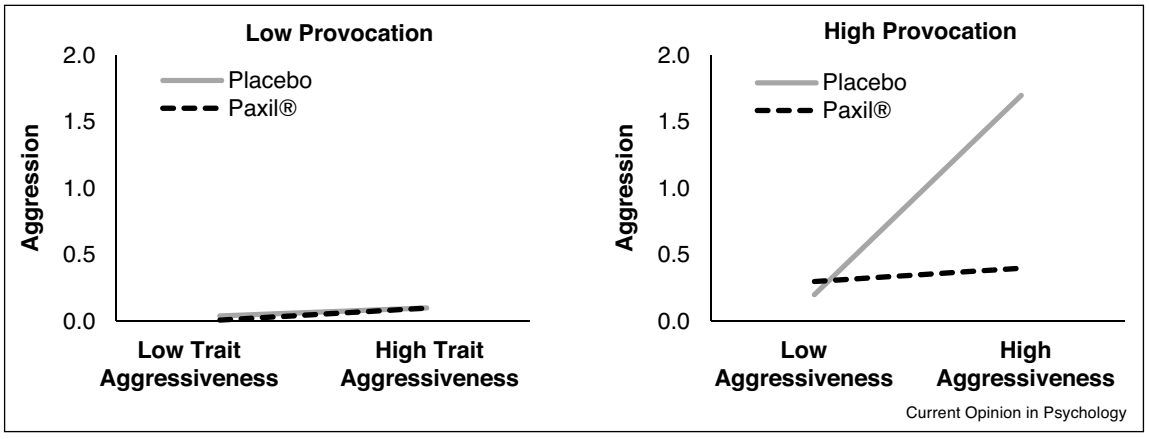
[1] The typical participant on the typical day inserted zero pins into the doll representing their partner, which is why the predicted means in Figure 3 are between 0 and 1. Still, there was notable variation across participants and across days, and this variation aligned with the hypothesis derived from Perfect Storm Theory.

**Figure 3**




An empirical demonstration of Perfect Storm Theory.
Figure adapted from study 4 in Slotter *et al.* [23].

**Figure 4**




An empirical demonstration of Perfect Storm Theory.
Figure adapted from Berman *et al.* [7•].

A separate, quite different, study affords a test of a conceptually similar 3-way interaction hypothesis.[2] This study investigated the interactive effects of provocation (instigator), trait aggressiveness (impellor), and serotonin administration (inhibitor) on aggression toward a stranger [7•]. Participants provided a measure of trait aggressiveness by indicating, in a structured interview, the extent to which they tend to exhibit temper outbursts, physical fighting, verbal aggression, assaults, and aggression toward objects. Serotonin administration, which is known to help people regulate negative emotional experiences, was manipulated by asking participants to ingest either 40 mg of paroxetine (in the form of Paxil®) or a placebo pill. Participants then engaged in a laboratory procedure with an ostensible opponent during which the two of them had opportunities to inflict electric shocks on each other. Provocation was manipulated by altering the severity of the electric shocks the opponent had inflicted on them. Aggression was assessed in terms of the intensity of shocks that participants inflicted on the opponent. In reality, there was no opponent; the provocation manipulation was pre-programmed by the experimenter, and nobody actually received the shocks that participants administered. As illustrated in Figure 4, the results from this study also aligned with Perfect Storm Theory's 3-way interaction effect prediction,

[2] This study was not initially designed to test perfect storm theory, but it nonetheless allows for such a test.

yielding especially high levels of aggression when people high in trait aggressiveness endured strong shocks and had ingested the placebo.

## In pursuit of process-oriented clarity in the aggression literature

But how do we know that trait retaliatory tendencies and trait aggressiveness predict increased aggression through impellance—might they instead reduce the tendency to override the proclivity to aggress (disinhibition)? How do we know that relationship commitment and paroxetine predict reduced aggression through inhibition—might they instead decrease the proclivity to respond aggressively to provocation in the first place (disimpellance)?

Unfortunately, the extant literature does not allow for definitive answers to such questions. On first glance, this lack of definitiveness might seem like a limitation of the $I^3$ Model, but the reality is that the model simply serves to highlight a limitation of the field in general: We lack strong evidence regarding the process or processes through which risk factors for aggressive behavior exert their effects. And, indeed, many risk factors almost certainly increase aggression through more than one process; for example, the belief that aggression is an effective means of conflict resolution is likely to promote aggressive behavior through both impellance and disinhibition.

Fortunately, although we frequently cannot be certain that a given variable exerts its effects on aggression entirely through a given process, we often have useful clues—in the form of precise theorizing or extant empirical associations—that can point us in the right direction. And we can work to develop better clues, perhaps by leveraging process dissociation procedures from the cognitive psychology and social cognition literatures [32–34]. Consider research investigating how executive control predicts a reduced likelihood of incorrectly perceiving a tool as a weapon after being primed with the face of a black (vs. a white) person [35]. A process dissociation procedure afforded the extraction of 'automatic' and 'controlled' components involved in such biases. Consistent with the hypothesis that executive control functions as an inhibitor, performance on an executive control task predicted stronger control of discriminatory misperceptions, but not weaker automatic reactions.

## Conclusion

The aggression literature boasts many influential theories and at least one major metatheory—the General Aggression Model [36]. The $I^3$ Model, and the various theoretical postulates derivable from it, complement these existing approaches by providing a novel organizing framework for aggression risk factors and by directing attention to the processes through which those risk factors influence aggression. The $I^3$ Model has the potential to produce fresh insights into aggressive behavior, whether the behavior is enacted by intellectual titans or by the rest of us.

## Conflict of interest statement

Nothing declared.

## References


1. Bakewell S: *At the Existentialist Café: Freedom, Being, and Apricot Cocktails*. New York: Other Press; 2016.

2. •• Finkel EJ: **The $I^3$ Model: metatheory, theory, and evidence**. In *Advances in Experimental Social Psychology, 49*. Edited by Olson JM, Zanna MP. San Diego: Academic Press; 2014.
This paper provides the definitive theoretical statement regarding both the $I^3$ Model and Perfect Storm Theory. It leverages these conceptual frameworks to provide novel reviews of the aggression and the eating literatures.

3. Twenge JM, Baumeister RF, Tice D, Stucke T: **If you can't join them, beat them: effects of social exclusion on aggressive behavior**. *J. Pers. Soc. Psychol.* 2001, **81**:1058-1069.

4. Gerber J, Wheeler L: **On being rejected: a meta-analysis of experimental research on rejection**. *Perspect. Psychol. Sci.* 2009, **4**:468-488.

5. Sinclair HC, Ladny RT, Lyndon AE: **Adding insult to injury: effects of interpersonal rejection types, rejection sensitivity, and self-regulation on obsessive relational intrusion**. *Aggress. Behav.* 2011, **37**:503-520.

6. Anderson CA, Buckley KE, Carnagey NL: **Creating your own hostile environment: a laboratory examination of trait aggressiveness and the violence escalation cycle**. *Pers. Soc. Psychol. Bull.* 2008, **34**:462-473.

7. • Berman ME, McCloskey MS, Fanning JR, Schumacher JA, Coccaro EF: **Serotonin augmentation reduces response to attack in aggressive individuals**. *Psychol. Sci.* 2009, **20**:714-720.
Researchers examined whether serotonergic activity in the prefrontal cortex moderates responses to provocation, thereby impacting aggressive behaviors. They found that when participants who were high in trait aggressiveness and experienced provocation took a drug known to increase serotonergic activity, their aggressive behaviors decreased. Given research linking elevated serotonergic activity to enhanced emotion regulation, these findings provide support for Perfect Storm Theory.

8. Bushman BJ, Baumeister RF: **Threatened egotism, narcissism, self-esteem, and direct and displaced aggression: does self-love or self-hate lead to violence?** *J. Pers. Soc. Psychol.* 1998, **75**:219-229.

9. Bushman BJ, Bonacci AM, Pedersen WC, Vasquez EA, Miller N: **Chewing on it can chew you up: effects of rumination on triggered displaced aggression**. *J. Pers. Soc. Psychol.* 2005, **88**:969-983.

10. Ross L, Nisbett RE: *The Person and the Situation: Perspectives of Social Psychology*. New York, NY: McGraw-Hill; 1991.

11. Santor DA, Ingram A, Kusumakar V: **Influence of executive functioning difficulties on verbal aggression in adolescents: moderating effects of winning and losing and increasing and decreasing levels of provocation**. *Aggress. Behav.* 2003, **29**:475-488.

12. Rasmussen KR, Boon SD: **Romantic revenge and the dark triad: a model of impellance and inhibition**. *Pers. Individ. Differ.* 2013, **56**:51-56.

13. Paulhus DL: **Toward a taxonomy of dark personalities**. *Curr. Dir. Psychol. Sci.* 2014, **23**:421-426.

14. Birkley EL, Eckhardt CI: **Anger, hostility, internalizing negative emotions, and intimate partner violence perpetration: a meta-analytic review**. *Clin. Psychol. Rev.* 2015, **37**:40-56.

15. Borders A, Giancola PR: **Trait and state hostile rumination facilitate alcohol-related aggression**. *J. Stud. Alcohol Drugs* 2011, **72**:545-554.

16. • Finkel EJ, DeWall CN, Slotter EB, McNulty JK, Pond RS Jr, Atkins DC: **Using $I^3$ theory to clarify when dispositional aggressiveness predicts intimate partner violence perpetration**. *J. Pers. Soc. Psychol.* 2012, **102**:533-549.
The first study ever designed to test the $I^3$ Model and Perfect Storm Theory was Study 4 in this paper. Participants who varied in their trait tendencies toward physical aggressiveness (impellor) and in trait executive functioning (inhibitor) participated in a diary study in which they reported every day for 35 days how much their partner provoked them that day (instigation). Aggression was assessed with an analog procedure in which participants have the opportunity to select how many pins they wanted to insert into a doll representing their partner. Results revealed that highly physically aggressive participants who had been highly provoked on a given day were less aggressive toward their partner to the extent that they had stronger trait executive control.

17. Berkowitz L, LePage A: **Weapons as aggression-eliciting stimuli**. *J. Pers. Soc. Psychol.* 1967, **7**:202-207.

18. Klinesmith J, Kasser T, McAndrew FT: **Guns, testosterone and aggression**. *Psychol. Sci.* 2006, **17**:568-571.

19. Denson TF, DeWall CN, Finkel EJ: **Self-control and aggression**. *Curr. Dir. Psychol. Sci.* 2012, **21**:20-25.

20. Finkel EJ, DeWall CN, Slotter EB, Oaten M, Foshee VA: **Self-regulatory failure and intimate partner violence perpetration**. *J. Pers. Soc. Psychol.* 2009, **97**:483-499.

21. Lau MA, Pihl RO, Peterson JB: **Provocation, acute alcohol intoxication, cognitive performance, and aggression**. *J. Abnorm. Psychol.* 1995, **104**:150-155.

22. Gaertner L, Foshee V: **Commitment and the perpetration of relationship violence**. *Pers. Relatsh.* 1999, **6**:227-239.

23. Slotter EB, Finkel EJ, DeWall CN, Pond RS, Lambert NM, Bodenhausen GV, Fincham FD: **Putting the brakes on aggression toward a romantic partner: the inhibitory influence of relationship commitment**. *J. Pers. Soc. Psychol.* 2012, **102**:291-305.

24. Eckhardt CI: **Effects of alcohol intoxication on anger experience and expression among partner assaultive men**. *J. Consult. Clin. Psychol.* 2007, **75**:61-71.

25. Bleuler M: **Conception of schizophrenia within the last fifty years and today**. *Proc. R. Soc. Med.* 1963, **56**:945-952.

26. Mischel W, Shoda Y: **A cognitive-affective system theory of personality: reconceptualizing situations, dispositions, dynamics, and invariance in personality structure**. *Psychol. Rev.* 1995, **102**:246-268.

27. Finkel EJ: **Impelling and inhibiting forces in the perpetuation of intimate partner violence**. *Rev. Gen. Psychol.* 2007, **11**:193-207.

28. Finkel EJ: **Intimate partner violence perpetration: insights from the science of self-regulation**. In *Social Relationships: Cognitive, Affective, and Motivational Processes*. Edited by Forgas JP, Fitness J. New York: Psychology Press; 2008:271-288.

29. Finkel EJ, Eckhardt CI: **Intimate partner violence**. In *The Oxford Handbook of Close Relationships*. Edited by Simpson JA, Campbell L. New York: Oxford; 2013:452-474.

30. Gawronski B, Bodenhausen GV (Eds): *Theory and Explanation in Social Psychology*. New York: Guilford Press; 2015.

31. Slotter EB, Finkel EJ: **$I^3$ theory: instigating, impelling, and inhibiting factors in aggression**. In *Human Aggression and Violence: Causes, Manifestations, and Consequences*. Edited by Mikulincer M, Shaver PR. Washington: American Psychological Association; 2011:35-52.

32. Jacoby LL: **A process dissociation framework: separating automatic from intentional uses of memory**. *J. Mem. Lang.* 1991, **30**:513-541.

33. Payne BK: **Prejudice and perception: the role of automatic and controlled processes in misperceiving a weapon**. *J. Pers. Soc. Psychol.* 2001, **81**:181-192.

34. Sherman JW, Gawronski B, Gonsalkorale K, Hugenberg K, Allen TJ, Groom CJ: **The self-regulation of automatic associations and behavioral impulses**. *Psychol. Rev.* 2008, **115**:314-335.

35. Payne BK: **Conceptualizing control in social cognition: how executive functioning modulates the expression of automatic stereotyping**. *J. Pers. Soc. Psychol.* 2005, **89**:488-503.

36. Anderson CA, Bushman BJ: **Human aggression**. *Annu. Rev. Psychol.* 2002, **53**:27-51.