

**Relationship Quality and Cognitive Reappraisal Moderate the Effects of Negative Urgency
on Behavioral Inclinations toward Aggression and Intimate Partner Violence**

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Objective

Intimate partner violence refers to verbal and physical aggression occurring between people who are, or were formerly, in an intimate relationship. Using the I³ Model framework, we examined the interactive influences of negative urgency (i.e., the tendency to act rashly when in a bad mood), relationship quality, and cognitive reappraisal on hostile vocalizations in response to simulated romantic jealousy.

Method

We instructed 135 healthy male or female undergraduates in romantic relationships to use cognitive reappraisal or not. Participants then listened and verbally responded to jealousy-provoking dating scenarios while vocalizations were recorded.

Results

Results indicated that cognitive reappraisal attenuated the positive association between negative urgency and aggressive vocalizations, but only for couples in high quality relationships.

Cognitive reappraisal also attenuated the negative association between relationship quality and vocalized negative affect in response to simulated romantic jealousy. Individual differences in negative urgency positively predicted vocalized negative affect and vocalized anger.

Conclusions

Cognitive reappraisal may attenuate the effect of aggressive impellers on intimate partner violence, but only when relationship quality is high. When relationship quality is low, cognitive reappraisal may not be effective.

Keywords: intimate partner violence; relationship quality; cognitive reappraisal; emotion regulation; domestic violence.

Intimate partner violence (IPV) is a pervasive phenomenon worldwide (Desmarais, Reeves, Nicholls, Telford, & Fiebert, 2012). IPV includes psychological abuse, emotional abuse, and physical and sexual violence. The World Health Organization (2013) estimates that 30% of women worldwide have experienced physical or sexual IPV. The lifetime prevalence for men experiencing some form of IPV is similar (Black et al., 2011). IPV compromises physical and mental health (Wong & Meller, 2014), reduces the ability to work (Rothman & Corso, 2008), and increases involvement in the criminal justice system (Jordan, 2004). Given the prevalence of IPV, the costs associated with its perpetration, and the low effectiveness of current IPV intervention programs (see Eckhardt et al., 2013), evidence-based IPV interventions are needed. In the current study, we examined the influences of cognitive reappraisal, relationship quality, and individual differences in negative urgency on hostile vocalizations and negative emotionality relevant to IPV.

The I³ Model framework (Finkel & Eckhardt, 2013; Finkel, 2014) is a coherent framework for categorizing and examining IPV risk factors. The I³ Model places emphasis on self-regulation processes, positing that risk and protective factors for aggression fall into three categories: instigation, impellance, and inhibition (Slotter & Finkel, 2011). Instigation refers to discrete situational circumstances that induce an urge to aggress (e.g., experiencing romantic jealousy; Slotter & Finkel, 2011). Impellance refers to dispositional or situational factors that strengthen the aggressive urge following an instigating trigger (e.g., negative emotionality; Slotter & Finkel, 2011). Inhibition refers to factors that increase the likelihood of overriding the tendency to act on aggressive urges (e.g., executive control; Finkel, 2014). Research within the I³ Model framework demonstrates that IPV is more likely when instigation and impellance factors are strong and inhibition factors are weak (e.g., Finkel et al., 2012; Slotter & Finkel, 2011), a situation referred to as a “perfect storm” (i.e., the ‘Perfect Storm Theory’; Finkel, 2014, p. 33).

By strengthening inhibitory factors, I³ Model interventions may help people resist aggressive urges and lessen the likelihood of IPV. One promising intervention that may inhibit IPV is cognitive reappraisal. Cognitive reappraisal consists of changing the way a situation is interpreted so that the course of the emotional trajectory is altered (Gross, 2002). It is an antecedent-focused strategy for down-playing emotion and initiates self-regulatory processes before the emotion is fully generated. Cognitive reappraisal decreases the experience and expression of negative emotion (Gross & John, 2003; Webb, Miles, & Sheeran, 2012), reduces aggressive behavior following provocation (Bartlett & Anderson, 2011), and reduces behavioral and subjective indicators of anger (e.g., Germain & Kangas, 2015; Fabiansson & Denson, 2012; Mauss, Cook, Cheng, & Gross, 2007; Ray, Wilhelm, & Gross, 2008; Szasz, Szentagotai, & Hofmann, 2011). By lessening the emotional relevance of a situation (Gross, 1998), cognitive reappraisal training can potentially help individuals inhibit aggressive impulses towards intimate partners (e.g., Maldonado, DiLillo, & Hoffman, 2015).

Another inhibitory factor which may assist individuals to override the urge to aggress following instigation is relationship quality. Relationship quality refers to a partner's subjective evaluation of their romantic relationship (Fincham & Rogge, 2010). Higher levels of IPV within relationships are associated with lower relationship quality and satisfaction over time (e.g., Panuzio & DiLillo, 2010). High quality relationships are characterized by greater levels of commitment, satisfaction, and trust (Brennan & Shaver, 1995; Rusbult, 1980). Individuals who perceive high commitment, satisfaction, and trust in their relationships may be more likely to inhibit urges to aggress against their partner when provoked.

The likelihood of IPV is lessened when the strength of inhibitory factors outweighs that of impelling factors. One potential impellor of IPV may be negative urgency, an emotion-based disposition to engage in rash action when in the presence of intense negative affect (Cyders &

Smith, 2008). People who are high in negative urgency engage in rash, maladaptive, and aggressive behaviors when upset (Cyders & Smith, 2008; Dvorak, Pearson, & Kuvaas, 2013; Miller, Flory, Lynam, & Leukefeld, 2003; Settles et al., 2012). Negative urgency is distinguishable from neuroticism because the latter specifies who is likely to experience high levels of negative emotionality, whereas negative urgency describes a subset of people who respond impulsively when experiencing negative emotions. Negative urgency is also separate from low self-regulatory ability. Negative urgency is a specific response to instances in which negative affect is experienced rather than a general impulsive disposition across many situations (Cyders & Coskunpinar, 2010). Conversely, people with low self-regulatory strength lack the general ability to alter their responses and bring their behavior into line with standards, values, and long-term goals (Baumeister, Vohs, & Tice, 2007). For people high in negative urgency, the ability of cognitive reappraisal and high relationship quality to inhibit IPV may be weakened in the presence of negative affect.

To the best of our knowledge, no study has examined whether cognitive reappraisal and relationship quality inhibit IPV-related aggression among people high in negative urgency. By identifying how these factors interact, it may be possible to introduce tailored interventions and thereby lessen the incidence and impact of IPV. To this end, we exposed participants in romantic relationships to a validated simulated situation designed to arouse romantic jealousy (Davison, Robins, & Johnson, 1983; Eckhardt et al., 1998). We then examined whether brief instruction in cognitive reappraisal inhibited aggressive vocalizations and negative emotionality as a function of individual differences in negative urgency and relationship quality.

We predicted that cognitive reappraisal would attenuate the effect of negative urgency on vocalized negative emotionality (statements of negative affect and anger) and vocalized aggressive inclinations (statements indicating aggressive behavior toward the intimate partner

and toward the interloper) for people in high but not low quality relationships (i.e., a three-way interaction). We included aggression directed toward the interloper as same-sex competition for romantic partners is a common source of aggressive conflict between men and women (Blake & Denson, in press; Fisher, 2004).

Method

Participants

One-hundred and fifty-eight men and women in romantic relationships (103 women, $M_{age} = 20.43$, $SD = 3.65$) participated in a study ostensibly investigating listening and comprehension ability and social interactions. Participants were eligible for inclusion in the study if they were fluent in English, over 18 years old, and in a current heterosexual relationship. Participants were recruited from the University of New South Wales' first year psychology participant pool ($n = 127$) or from the general community via the university's paid research participation pool advertised online ($n = 31$; payment was AUD\$15). Most participants were in non-cohabitating dating relationships (77.8%), the remainder were cohabitating, engaged, or married (22.2%). Participants had been in their current relationship for an average of two years ($M = 24.4$ months, $SD = 16.00$, range = 1 month to 18 years). We removed data from 1 participant due to failing both attention checks, 21 due to voice recording technology malfunction, and 1 due to being in a homosexual relationship. A power analysis in G*Power 3.1.9.2 showed that the remaining sample size ($n = 135$; 86 women; $M_{age} = 20.55$, $SD = 3.79$) provided power at .82 to detect a medium effect ($d = 0.50$) of condition ($\alpha_{two-tailed} = .05$).

Materials

Negative urgency. The urgency subscale of the UPPS Impulsive Behaviour Scale (Whiteside & Lynam, 2001) was used to assess negative urgency. The subscale comprised 12 items measuring the tendency to act rashly in response to intense negative mood states (1 =

disagree strongly, 4 = agree strongly; e.g., ‘when I am upset I often act without thinking’).

Reliability was acceptable and items were averaged then mean-centered for regression analyses (Chronbach’s $a = .83$). Negative urgency is positively associated with violence directed toward intimate partners in the presence of negative affect (Derefinko, DeWall, Metze, Walsh, & Lynam, 2011; Leone, Crnae, Parrott, & Eckardt, 2016) as are high impulse control difficulties (Watkins, Maldonado, & DiLillo, 2014).

Perceived relationship quality. Three items measured on a 5-point scale assessed perceived relationship quality (1 = strongly disagree; 5 = strongly agree). Items were adapted from the Investment Model Scale (Rusbult, Martz, & Agnew, 1998) and the Perceived Relationship Quality Components Inventory (Fletcher et al., 2007). The items assessed relationship satisfaction (‘I feel satisfied within my relationship’), trust (‘I trust my partner’), and commitment (‘I am committed to maintaining my relationship with my partner’). A brief measure of relationship quality was chosen as previous research suggests that measures of relationship quality are highly correlated and largely interchangeable whether they contain many items or few items (Fincham & Rogge, 2010). Reliability was acceptable and items were averaged then mean-centered for regression analyses ($a = .63$). Weak versus strong commitment to one’s intimate partner predicts greater levels of aggression following provocation (Slotter et al., 2012).

Articulated Thoughts in Simulated Situations (ATSS) paradigm. We used the ATSS (Davison et al., 1983; Eckhardt & Crane, 2008, 2014) as an instigator to provoke jealousy and assess participants’ aggressive vocalizations in response to simulated scenarios involving intimate partners. The ATSS elicits aggressive vocalizations as a proxy measure for aggressive behavior (Eckhardt & Crane, 2002). Aggressive vocalizations on the ATSS predict IPV (Eckhardt et al., 1998). Participants listened to a standardized audio-recording of the experimenter detailing

the instructions and procedure of the ATSS paradigm. Participants were instructed that they would listen to two simulated scenarios then vocalize their thoughts about the scenarios into a microphone. One scenario was a neutral scenario and the other was jealousy-provoking. Both scenarios were relevant to a university-aged sample and were audio recorded using Australian actors. We instructed students to immerse themselves in the scenarios and imagine themselves in the situation as if it were happening at that moment. Vocalizations recorded through the ATSS procedure were transcribed by the second author.

Following procedures outlined by Eckhardt and colleagues (Eckhardt, Jamison, & Watts, 2002; Eckhardt & Crane, 2008), we trained three people to code the vocalizations using an ATSS Coding Manual written by [MASKED]. The coders counted the vocalizations for aggressive behavioral intentions. These included verbal aggression (demeaning or insulting statements that engage the partner or interloper in an aggressive manner; e.g., “Hey you moron quit acting like an ass”) and physical aggression (statements expressing a desire to push, hit or physically aggress; e.g., “I’d like to take that guy outside and mess him up”). Aggressive verbalizations were coded towards the intimate partner as well as the interloper in the scenario. We also coded vocalized statements of anger such as ‘enraged’, ‘angry’, or ‘furious’; negative affect (i.e., responses expressing negative affect that was not anger - such as fear, anxiety, sadness, or depression); and reappraisal (i.e., statements indicating that the respondent was actively trying to decrease anger or resolve conflict by reframing the circumstances to be less provocative). The second researcher coded 100% of the transcriptions. The transcriptions were then double coded by the last researcher and a research assistant who completed 25% and 75% of transcriptions, respectively. Coders were blind to condition and interrater reliability was substantial for all measures (Cohen’s κ s \geq .62, p s \leq .001; Landis & Koch, 1977). Counts were averaged between the two coders then doubled to ensure all counts were zero or positive integers as required for the

stastical analysis.

Mood adjective checklist. To assess the effectiveness of the ATSS jealousy-provoking scenarios in eliciting negative mood, we administered a mood adjective checklist (Nowlis, 1965) immediately preceding the ATSS, after the neutral scenario, and after the jealousy scenario. Nine items assessed self-reported negative mood on a 7-point scale (1 = not at all, 7 = extremely so; e.g., 'upset'). Reliability was acceptable and items were averaged ($\alpha = .95$).

In vivo reappraisal use. Following the completion of the ATSS procedure, two items adapted from the Strategies Questionnaire (Ehring, Tuschen-Caffier, Schnulle, Fischer, & Gross, 2010) assessed self-reported use of cognitive reappraisal during the ATSS. Items were 'I thought about the scenarios in a way that helped me to experience less negative emotion' and 'I tried to adopt a neutral attitude toward the scenario' ($\alpha = .70$). Items were measured on a 6-point scale (1 = strongly disagree, 6 = strongly agree) and scores were aggregated ($M = 7.07$, $SD = 2.78$).

Procedure

We randomly allocated participants to the cognitive reappraisal or no instruction control condition, stratified by gender. Following written informed consent, participants completed negative urgency and perceived relationship quality questionnaires as well as the mood adjective checklist. All participants then completed the neutral scenario from the Articulated Thoughts in Simulated Situations (ATSS) paradigm (Davison et al., 1983; Eckhardt et al., 1998) and completed the mood adjective checklist again. The neutral scenario involved the participant overhearing another couple having a pleasant but idle conversation while they waited for their partner in a restaurant. The scenario was divided into five segments, each separated by a 30-second opportunity for participants to verbally articulate their thoughts, feelings, and reactions to the segment. Participants were signalled to verbalize their thoughts by a short audio tone as well as a visual cue that read "please speak now". The neutral scenario was included to train the

participant in the ATSS procedure and to establish a baseline so we could confirm that the jealousy-provoking scenario successfully lowered self-reported negative mood.

After completing the neutral scenario, participants wrote a fact-based summary of a recent disagreement they experienced with their intimate partner. This exercise was included so that participants in the cognitive reappraisal group had a disagreement with their intimate partner to reappraise during the cognitive reappraisal training. Both groups of participants performed this exercise to ensure that recalling a recent disagreement with an intimate partner did not influence negative affect between groups. After this writing exercise, participants in the control condition completed the jealousy-provoking ATSS scenario, whereas participants in the reappraisal condition first completed a 10-minute writing task that instructed them to cognitively reappraise the disagreement they wrote about (from Finkel et al. 2013).

During the cognitive reappraisal training, participants were instructed to review the summary of their recent disagreement with their partner. They were asked to consider this disagreement from the perspective of a neutral third party who wanted the best for all involved and consider the obstacles they might face when trying to take a third-person perspective in this situation (Appendix A). Participants were then instructed to take a third-party perspective during the next ATSS scenario (the jealousy-provoking scenario).

Responses to the jealousy-provoking scenario formed the main outcome variables for the experiment because provoking jealousy was our instigator of aggression. As such, this outcome was presented to participants after they had trained in the ATSS procedure with the neutral scenario, and after participants in the cognitive reappraisal condition had been instructed in reappraisal. Like the neutral scenario, the jealousy-provoking scenario was divided into five segments and participants verbalized their thoughts, feelings, and reactions as per the neutral scenario procedure. The jealousy-provoking scenario involved the participant overhearing their

partner flirting with an opposite sex person and mildly insulting the participant.

After the jealousy-provoking scenario, all participants completed the mood adjective checklist again. Upon completion of the study, participants were thanked for their participation, verbally debriefed about the purpose of the study, and provided contact details of the university counselling service and a domestic violence hotline. No participant reported guessing the true aim of the study during the debrief procedure.

Statistical Analyses

Coded vocalizations were count data and were significantly skewed (all skew and most kurtosis statistics exceeded ± 3 -SEs). We compared fit indices between poisson and negative binomial generalized linear regression models (GLMs) and found that data were overdispersed (all deviance/df ratios were >1) and that negative binomial models produced smaller fit indices across all outcome variables (as evidenced by smaller AIC values and deviance/df ratios approximating 1). Thus, we used negative binomial regression GLMs with a robust estimator to predict count outcomes and examine study hypotheses. We used a full factorial design for each outcome variable, with a three-way interaction between reappraisal condition, negative urgency, and relationship quality, as well as all corresponding lower-order terms. Where relevant, we interpreted significant three-way interactions by examining the effect of condition at low and high values of each moderator. We used the criterion of ± 1 -SD to determine low and high values for negative urgency (Aiken & West, 1991). Because the highest value for relationship quality was 0.82 -SDs, we used the criterion of -1 -SD and $+0.82$ -SD for low and high values of relationship quality respectively. We also removed data from one participant from three models due to Cook's distances exceeding six times the criterion cut-off.

We examined and confirmed that there were no main effects for participant gender across all outcome and predictor variables ($ps \geq .513$), except for vocalized negative affect ($p = .032$,

$\eta_p^2 = .03$). Women ($M = 8.63$, $SD = 7.15$) vocalized more negative affect than men ($M = 6.06$, $SD = 6.05$). Because including a main effect of gender in the negative affect model did not change the interpretation of the results reported here, all subsequent analyses were collapsed across gender.

Results

Manipulation Check

Negative mood. To determine whether the jealousy-provoking scenario from the ATSS elicited negative mood, we conducted a repeated measures analysis of variance (ANOVA) on self-reported negative mood measured before the ATSS, after the neutral scenario, and after the jealousy-provoking scenario. We entered condition as a between-subjects factor and included the time \times condition interaction. There were significant differences in self-reported negative mood across time, Greenhouse-Geisser corrected $F(1.29, 172.05) = 91.79$, $p < .001$, $\eta_p^2 = .41$. Pairwise contrasts showed that the jealousy-provoking scenario ($M = 2.74$, $SD = 1.45$) elicited significantly more self-reported negative mood than the neutral scenario ($M = 2.03$, $SD = 0.83$), $F(1, 133) = 81.99$, $p < .001$, $\eta_p^2 = .38$, and more negative mood compared to baseline (mood measured before the ATSS, $M = 1.68$, $SD = 0.80$), $F(1, 133) = 106.84$, $p < .001$, $\eta_p^2 = .45$. In addition, the neutral scenario elicited more negative mood than baseline, $F(1, 333) = 50.75$, $p < .001$, $\eta_p^2 = .43$. There was no effect of condition or a time \times condition interaction ($ps \geq .204$), demonstrating that the ATSS affected mood equally between the control and reappraisal groups.

In vivo reappraisal use. An independent samples t -test indicated that participants in the reappraisal condition ($M = 6.70$, $SD = 2.76$) did not report that they cognitively reappraised the scenarios to a greater extent than those in the control condition ($M = 7.45$, $SD = 2.77$), $t(130) = 1.55$, $p = .124$, Cohens's $d = -0.27$.

Vocalized Aggression toward the Partner

There was a three-way interaction between negative urgency, relationship quality, and condition, $b = -0.15$, 95% CI $[-0.23, -0.06]$, $p < .001$, see Table 1. The effect of negative urgency on aggression toward the partner differed between conditions when people were in high quality relationships, $t(133) = 3.09$, $p = .002$. When relationship quality was high, the relationship between negative urgency and aggressive vocalizations toward one's partner was weaker among participants in the cognitive reappraisal condition ($b = -0.11$, CI $[-0.21, 0.001]$, $p = .051$) relative to the control condition, $b = 0.16$, CI $[0.02, 0.31]$, $p = .030$, see Figure 1. In other words, reappraisal attenuated the effect of negative urgency on aggression toward the partner, but only when relationship quality was high. When relationship quality was low, the effect of negative urgency on aggression toward the partner did not differ between conditions ($p = .068$). People in both conditions were more aggressive toward the partner as negative urgency increased, control: $b = 0.05$, CI $[-0.03, 0.13]$, $p = .217$, reappraisal: $b = 0.23$, CI $[0.05, 0.40]$, $p = .011$, but the slope reached statistical significance in the reappraisal condition only.

Vocalized Aggression towards the Interloper

There was a three-way interaction between negative urgency, relationship quality, and the cognitive reappraisal manipulation, $b = -0.16$, CI $[-0.22, -0.09]$, $p < .001$, see Table 1. The effect of negative urgency on aggression toward the interloper differed between conditions when people were in high quality relationships, $t(133) = 3.85$, $p < .001$. When relationship quality was high, the relationship between negative urgency and aggressive vocalizations toward the interloper was weaker among participants in the cognitive reappraisal condition, $b = -0.02$, CI $[-0.13, 0.08]$, $p = .661$, relative to the control condition, $b = 0.32$, CI $[0.17, 0.47]$, $p < .001$, see Figure 2. Reappraisal attenuated the effect of negative urgency on aggression toward the interloper, but only when relationship quality was high. When relationship quality was low, the effect of negative urgency on aggression toward the interloper was marginally different between

conditions ($p = .059$). People in both conditions were more aggressive toward the interloper as negative urgency increased, control: $b = 0.01$, CI [-0.06, 0.09], $p = .785$, reappraisal: $b = 0.14$, CI [0.03, 0.26], $p = .016$, but the slope reached statistical significance in the reappraisal condition only.

Vocalized Negative Affect

The three-way interaction between negative urgency, relationship quality, and the cognitive reappraisal manipulation was not significant ($p = .599$). As a supplementary analysis, we removed the three-way interaction from the model and examined the two-way interactions between the manipulation and the negative urgency and relationship quality respectively. There was no reappraisal \times negative urgency interaction ($p = .512$), but there was a positive main effect of negative urgency: People high on negative urgency vocalized more negative affect during the ATSS (see Table 1). There was also a significant reappraisal \times relationship quality interaction, $b = 0.25$, CI [0.09, 0.41], $p = .002$, see Table 1. An analysis of simple slopes revealed that the relationship between relationship quality and vocalized negative affect was weaker among participants in the reappraisal condition, $b = 0.10$, CI [-0.04, 0.23], $p = .155$, relative to the control condition $b = -0.15$, CI [-0.07, -0.24], $p = .001$. In other words, reappraisal attenuated the negative effect of relationship quality on vocalized negative affect.

Vocalized Anger

The three-way interaction was not significant ($p = .486$). As a supplementary analysis, we removed this term from the model and examined the two-way interactions between the manipulation, negative urgency, and relationship quality. Neither two-way interactions were significant ($ps \geq .131$), see Table 1. There was a main effect of negative urgency: Participants vocalized more anger when they were higher on negative urgency, $b = 0.14$, CI [0.07, 0.20], $p < .001$. Main effects of condition and relationship quality were not significant ($ps \geq .816$).

Ancillary Analysis

To provide insight into why reappraisal training did not attenuate the effect of negative urgency on aggression toward the intimate partner or interloper for people in low quality relationships, we ran an exploratory additional analysis. In this analysis we entered condition, relationship quality, and negative urgency in a negative binomial regression model predicting vocalized reappraisal statements during the ATSS jealousy-provoking scenario. We also entered the condition \times relationship quality and condition \times negative urgency interaction terms. We aimed to investigate whether relationship quality or negative urgency affected reappraisal use in each condition. The model yielded $\chi^2(5, N = 134) = 27.74, p < .001$. Relationship quality was a significant positive predictor of vocalized reappraisal statements, $b = 0.20, CI [0.01, 0.40], p = .043$, and negative urgency was a significant negative predictor of vocalized reappraisal statements, $b = -0.07, CI [-0.13, -0.10] p = .026$. Participants vocalized more reappraisal statements when relationship quality was high and negative urgency was low. Neither two-way interaction or the main effect of condition was significant ($ps \geq .220$).

Discussion

The present study used the I³ Model framework (Finkel & Eckhardt, 2013; Finkel, 2014) to investigate the interactive effects of a brief cognitive reappraisal intervention, negative urgency, and relationship quality on hostile vocalizations relevant to IPV. We found partial support for our hypothesis: cognitive reappraisal training, negative urgency, and relationship quality interacted to predict vocalized aggression toward the partner and interloper. However, this interaction did not predict vocalized negative affect or vocalized anger. The significant three-way interactions showed that when relationship quality was high, the impelling effect of negative urgency on aggressive vocalizations towards the partner and interloper was attenuated by cognitive reappraisal training. In contrast, the effect of negative urgency on aggressive

vocalizations toward the partner or interloper was not attenuated by cognitive reappraisal training when relationship quality was low. Supplementary analyses also showed that cognitive reappraisal training attenuated the negative effect of relationship quality on vocalized negative affect but not vocalized anger.

A substantial body of research shows that cognitive reappraisal can decrease negative emotion, anger, and aggressive behavior following provocation (Bartlett & Anderson, 2011; Denson, Moulds, & Grisham, 2012; Fabiansson & Denson, 2012; Maldonado et al., 2015; Mauss, Cook, Cheng, & Gross, 2007; Webb, Miles, & Sheeran, 2012). We extend these past results by suggesting that cognitive reappraisal affects individuals differently depending on their self-perceived relationship quality. By showing that the effect of negative urgency on aggressive inclinations is resistant to modification through cognitive reappraisal when relationship quality is low, our findings further extend work demonstrating that negative urgency is an important contributor to aggressive behavior (Derefinko et al., 2011; Leone et al., 2016; Miller, Flory, Lynam, & Leukefeld, 2003; Scott, DiLillo, Maldonado, & Watkins, 2015; Watkins et al., 2014). The findings from the current study are consistent with I³ theory and prior research demonstrating that IPV is more likely when instigation and impellance factors are strong (e.g., a jealousy-provoking situation and high negative urgency, respectively) and inhibition factors are weak (e.g., low relationship quality; Finkel et al., 2012; Slotter & Finkel, 2011).

Limitations

Although the cognitive reappraisal training effectively reduced aggressive vocalizations for people in high quality relationships, participants in the cognitive reappraisal condition did not report using more reappraisal than those in the control condition. It is possible that responses to the self-reported reappraisal questions following the ATSS were biased by social desirability, thus obscuring the true effect of the reappraisal instruction on reappraisal use. Alternatively,

some participants in the reappraisal condition may not have been cognizant of reappraising the scenario despite having done so, thus explaining the null result. A thorough investigation of the cognitive and meta-cognitive processes that individuals engage in after brief cognitive reappraisal training may have benefits for reducing intimate partner conflict.

Our cognitive reappraisal training was only 10 minutes in duration and it is possible that the intervention was too brief to ensure people in low quality relationships effectively reappraised intimate partner conflicts. People in low quality relationships may need more extensive training in cognitive reappraisal for this technique to effectively reduce aggression. Until future work demonstrates that people in low quality relationships do not reappraise intimate partner conflicts even after extensive training in cognitive reappraisal, the ineffectiveness of cognitive reappraisal for people in low quality relationships should be considered a preliminary finding.

Most of our participants were in non-cohabitating dating relationships and the average relationship length was approximately two years. Future work confirming that our findings generalize to older populations and those in longer-term relationships would be informative. We also note that aggressive vocalizations are not a perfect proxy for IPV. Given ethical limitations in measuring actual IPV in the laboratory; however, we chose to use the well-validated, laboratory-based ATSS method in this study. Although aggressive vocalizations on the ATSS do predict IPV (Eckhart et al., 1998), attempts to extend the current findings to aggressive responses following naturally occurring relationship provocation would be a useful extension to this work.

Research Implications

We found that participants who reported high quality relationships articulated more reappraisal statements during the jealousy-provoking scenario irrespective of condition. This experiment is the first to examine the effect of relationship quality on cognitive reappraisal use

and suggests that individuals in high quality relationships spontaneously use cognitive reappraisal to manage intimate partner difficulties. Conversely, our results suggest that individuals in low quality relationships may not engage this strategy when faced with partner provocations even when instructed to do so. Although these results were the result of exploratory analyses and warrant replication, they imply that some basic degree of relationship quality may be a necessary condition for an individual's willingness to reappraise disagreements or take their partner's perspective. In other words, if partners do not trust each other or feel committed and satisfied, they be unmotivated to reappraise relationship conflict. Future research investigating these and other potential determinants of cognitive reappraisal in intimate relationships may shed further light on our findings. Daily diary or experience sampling studies that track relationship quality, reappraisal use, and intimate partner provocation over time may be particularly effective at uncovering the instigators of cognitive reappraisal during intimate partner conflicts.

We found that people high in negative urgency articulated fewer reappraisal statements than people low in negative urgency. Given that negative urgency is associated with worrying, intrusive thoughts, and thought control difficulties (Gay, Schmidt, & Van der Linden, 2011), participants high in negative urgency may have found it difficult to engage in the reappraisal process. Although cognitive reappraisal did attenuate the effect of negative urgency on aggressive vocalizations when relationship quality was high, cognitive reappraisal may not be the most effective emotion regulation strategy for individuals high in negative urgency. Instead, emotion regulation techniques that indirectly facilitate emotion regulation (e.g., self-control training; Denson, Capper, Oaten, Friese, & Schofield, 2011) may be more effective at inhibiting aggression for these individuals. Future experimental work comparing the effectiveness of self-control training versus cognitive reappraisal training at bolstering emotion regulation for individuals high in negative urgency may be informative.

Clinical and Policy Implications

Why might people in low quality relationships vocalize less negative affect but not less aggression after cognitive reappraisal training? Our data showed that the ATSS elicited equivalent feelings of self-reported negative mood irrespective of whether relationship quality was low or high, but that people in low quality relationships vocalized less negative affect in response to the jealousy-provoking scenario during the ATSS. It is possible that reductions in vocalized negative affect for people in low quality relationships in the current study may reflect emotional suppression rather than true reappraisal. Such an account is consistent with our ancillary analysis, which suggested that people in low quality relationships and people high in negative urgency were less likely to vocalize reappraisal statements during the ATSS. Although this claim is speculative, some research shows that suppressing emotionality can increase aggression (Jakupcak, 2003; Vohs, Glass, Maddox, & Markman, 2010). People in low quality relationships may be less willing to invest in cognitively taxing emotion regulation techniques like cognitive reappraisal, and may instead respond by suppressing their emotions. Likewise, people high in negative urgency may be unable to enact reappraisal strategies while experiencing distressing negative affect.

For people in high quality relationships, we found that cognitive reappraisal effectively reduced the effect of negative urgency on aggressive vocalizations but did not reduce vocalized anger or negative affect. These effects are inconsistent with past results showing that cognitive reappraisal reduces negative emotion and anger (Denson et al., 2012; Fabiansson & Denson, 2012; Mauss et al. 2007; Webb et al., 2012). However, they are consistent with research showing that reappraisal reduces aggressive behavior (Bartlett & Anderson, 2011). To explain this disjuncture, we highlight that late cognitive reappraisal is thought to lessen the influence of emotions on behavior (Gross, 1998). Accordingly, our results suggest that when relationship

quality is high, brief cognitive reappraisal training may disrupt the influence of negative affect on aggressive vocalizations. Although cognitive reappraisal interventions for people in high quality relationships may not reduce the extent to which jealousy-provoking scenarios elicit negative emotions, cognitive reappraisal may inhibit the influence of these IPV impellers on aggressive behavior.

Cognitive reappraisal is usually conceptualized as an antecedent-focused emotion regulation strategy. Theorists suggest that cognitive reappraisal decreases experiential and behavioral signs of negative emotion by initiating regulation before an emotion is fully generated (Gross, 1998). In contrast to this conceptualization, we found that cognitive reappraisal effectively reduced aggressive vocalizations without reducing negative affect or anger. This finding raises the possibility that cognitive reappraisal can target maladaptive aggressive inclinations without affecting emotion and even after negative emotions are generated.

Conclusions

The current study found that just ten minutes of training in cognitive reappraisal was effective in reducing the impelling effect of negative urgency on aggressive vocalizations, but only for participants in high quality relationships. Brief cognitive reappraisal interventions for people in low quality relationships may evoke emotional suppression but not cognitive reappraisal. The present findings suggest tailoring IPV interventions to accommodate individual differences in relationship quality and negative urgency, although more research is needed to confirm this notion. Considering relational dynamics and individual differences in concert with other risk factors for aggression may increase the efficacy of IPV interventions.

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<http://www.who.int/reproductivehealth/publications/violence/9789241564625/en/>

Tables

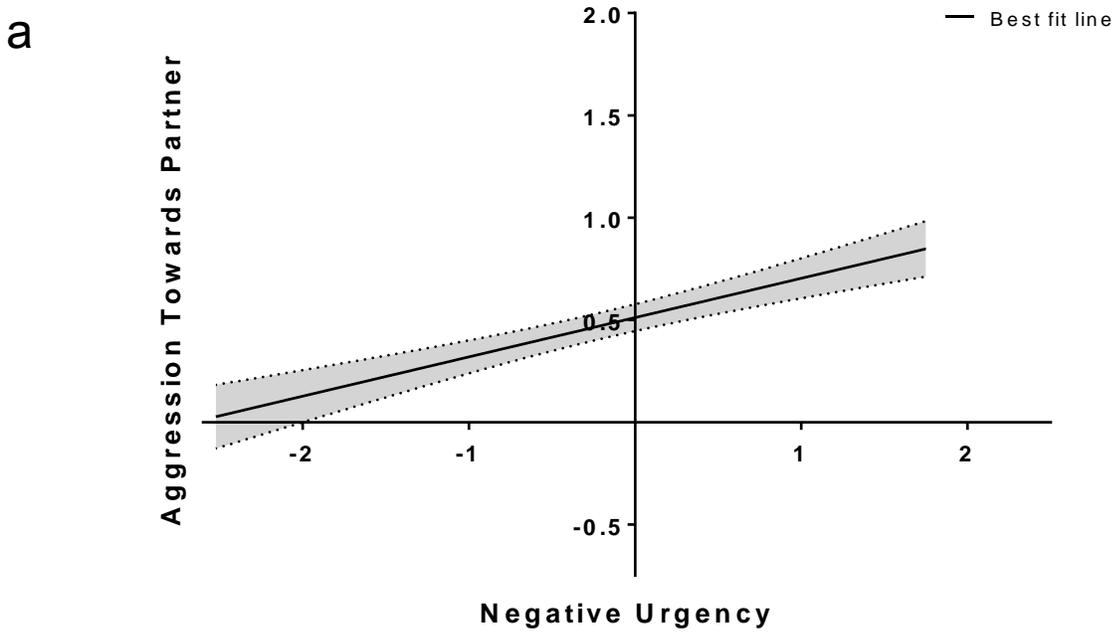
Table 1. Generalized linear models predicting vocalized anger, negative affect, and aggression in response to the jealousy-provoking scenario.

Model	<i>B</i>	CI	<i>p</i>
<u>Aggressive vocalizations towards the partner</u>			
Intercept	-0.96	[-1.49, -0.43]	<.001***
Cognitive reappraisal	-0.26	[-1.13, 0.60]	.548
Negative urgency	0.11	[0.013, 0.2]	.026*
Relationship quality	-0.13	[-0.37, 0.12]	.318
Reappraisal × negative urgency	-0.06	[-0.19, 0.07]	.391
Reappraisal × relationship quality	0.04	[-0.29, 0.36]	.825
Negative urgency × relationship quality	0.04	[-0.01, 0.08]	.112
Reappraisal × negative urgency × relationship quality	-0.15	[-0.23, -0.06]	<.001***
<u>Aggressive vocalizations towards the interloper</u>			
Intercept	-0.78	[-1.34, -0.21]	.007**
Cognitive reappraisal	-0.31	[-1.22, 0.61]	.508
Negative urgency	0.17	[0.073, 0.27]	.001***
Relationship quality	-0.29	[-0.57, -0.01]	.044*
Reappraisal × negative urgency	-0.12	[-0.25, 0.01]	.073 [†]
Reappraisal × relationship quality	0.39	[-0.08, 0.87]	.107
Negative urgency × relationship quality	0.10	[0.06, 0.15]	<.001***
Reappraisal × negative urgency × relationship quality	-0.16	[-0.22, -0.09]	<.001***
<u>Vocalized negative affect</u>			
Intercept	2.17	[1.98, 2.35]	<.001***
Cognitive reappraisal	-0.29	[-0.58, -0.004]	.047*
Negative urgency	0.04	[0.01, 0.08]	.016*
Relationship quality	-0.15	[-0.24, -0.07]	<.001***
Reappraisal × negative urgency	-0.02	[-0.06, 0.03]	.512
Reappraisal × relationship quality	0.25	[0.09, 0.41]	.002**
<u>Vocalized anger</u>			
Intercept	1.09	[0.75, 1.44]	<.001***
Cognitive reappraisal	-0.05	[-0.51, 0.40]	.816
Negative urgency	0.14	[0.07, 0.20]	<.001***
Relationship quality	0.00	[-0.15, 0.15]	.978
Reappraisal × negative urgency	-0.07	[-0.16, 0.02]	.131
Reappraisal × relationship quality	0.13	[-0.09, 0.36]	.239

Note. [†]*p* < .10. **p* < .05. ***p* < .010. ****p* < .001. Aggression towards the partner: $\chi^2(7, N = 134) = 16.77, p = .019$. Aggression towards the interloper: $\chi^2(7, N = 134) = 51.17, p < .001$. Negative affect model: $\chi^2(5, N = 135) = 12.39, p = .030$. Anger model: $\chi^2(5, N = 134) = 28.76, p < .001$.

Figures

Aggression toward the partner (low relationship quality)



Aggression toward the partner (high relationship quality)

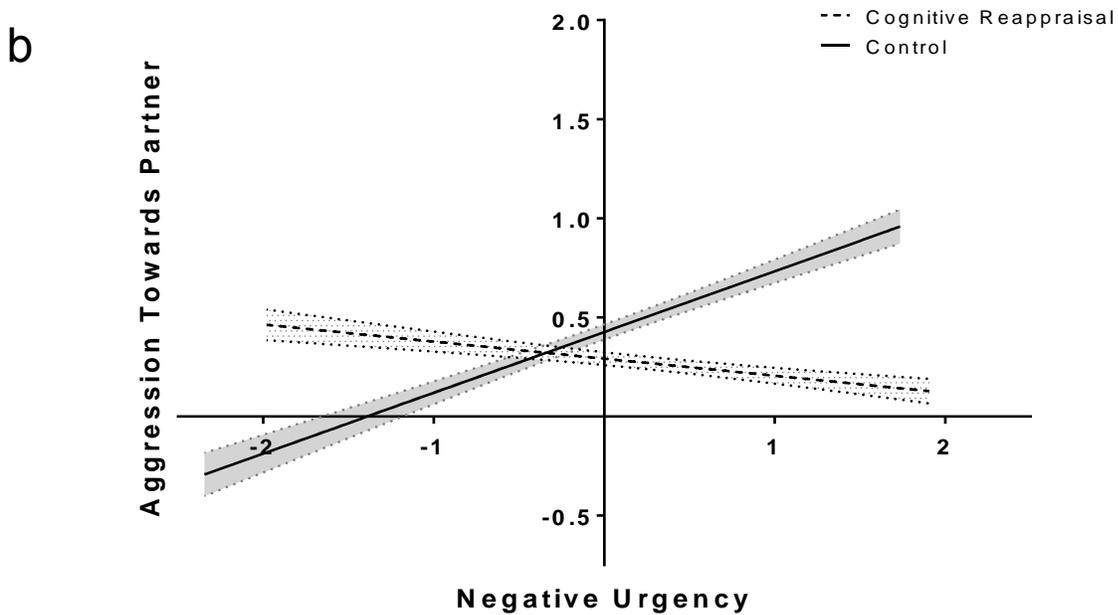
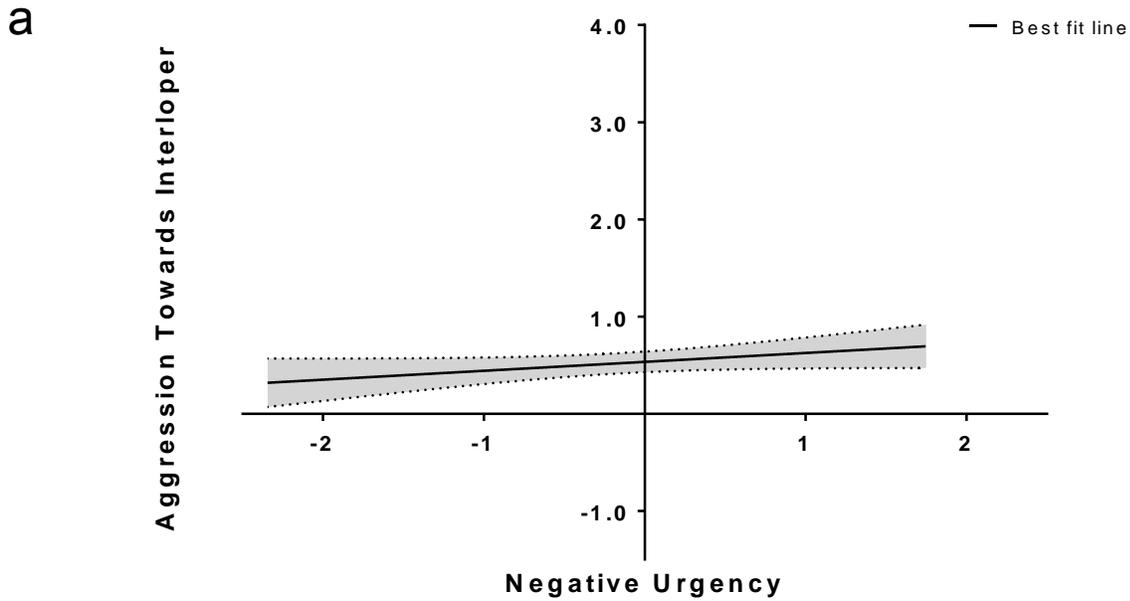


Figure 1. Effect of negative urgency on aggression towards the partner as a function of cognitive reappraisal, for low and high quality relationship groups.

Note. All figures include 95% confidence bands and plot predicted counts. For illustrative purposes, one residual outlier was removed from Panel A and low ($n = 51$) and high ($n = 84$) relationship quality groups are depicted via a mean split. The line in the low relationship quality group is a best fit line collapsed across conditions.

Aggression toward the interloper (low relationship quality)



Aggression toward the interloper (high relationship quality)

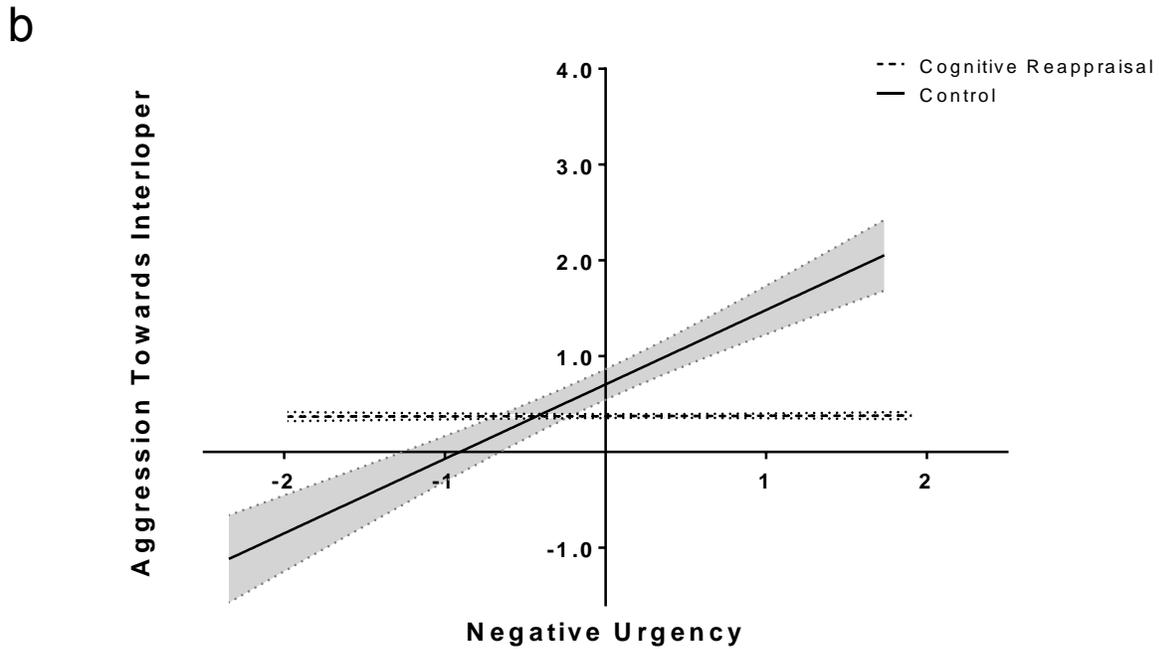


Figure 2. Effect of negative urgency on aggression towards the interloper as a function of cognitive reappraisal, for low and high relationship quality groups.

Note. All figures include 95% confidence bands and plot predicted counts. For illustrative purposes, two residual outliers were removed from Panel A, one residual outlier was removed from Panel B, and low ($n = 51$) and high ($n = 84$) relationship quality groups are depicted via a mean split. The line in the low relationship quality group is a best fit line collapsed across conditions.

Appendices

Appendix A – Cognitive Reappraisal Training Instructions (from Finkel et al., 2013)

“Think about the specific disagreement that you just wrote about having with your partner. Think about this disagreement with your partner from the perspective of a neutral third party who wants the best for all involved; a person who sees things from a neutral point of view. How might this person think about the disagreement? How might he or she find the good that could come from it? Some people find it helpful to take this third-party perspective during their interactions with their romantic partner. However, almost everybody finds it challenging to take this third-party perspective at all times. In your relationship with your partner, what obstacles do you face in trying to take this third-person perspective, especially when you’re having a disagreement with your partner?”



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