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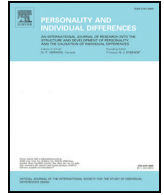
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# Trait forgiveness and enduring vulnerabilities: Neuroticism and catastrophizing influence relationship satisfaction via less forgiveness



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## ABSTRACT

Two studies examine whether specific cognitive tendencies and underlying personality traits inhibit the tendency to forgive and, in turn, decrease relationship satisfaction among emerging adults in committed romantic relationships (median relationship duration 1–2 years). In Study 1 ( $N = 355$ ), trait forgiveness had a positive, direct association with later relationship satisfaction and mediated the effect of neuroticism on relationship satisfaction. In Study 2 ( $N = 354$ ), forgiveness had a positive, direct association with relationship satisfaction and mediated the association between catastrophic rumination and relationship satisfaction. Forgiveness mediated changes in relationship satisfaction over time, with greater trait forgiveness predicting higher relationship satisfaction. Implications for research on forgiveness and for applied work on couple preventive interventions are discussed.

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## 1. Introduction

Forgiveness research has flourished in recent decades. However, forgiveness has largely been conceptualized in theoretical isolation, only rarely being linked to broader theories in couple research. Therefore, we examine the role that forgiveness plays in a broader theoretical model in couple research, the Vulnerability Stress Adaptation (VSA) model. Two major research questions are investigated. First, what enduring vulnerabilities inhibit the tendency to forgive *and* can the higher order trait of neuroticism better explain associations between proximal cognitive tendencies, like rumination, and forgiveness? Second, is the tendency to forgive a mechanism that mediates the negative effects of these enduring vulnerabilities on relationship satisfaction?

## 2. The role of forgiveness in couple relationships

Evidence that forgiveness plays an important role in maintaining healthy romantic relationships is accumulating. Forgiveness is associated with greater commitment and willingness to sacrifice for the benefit of a romantic partner (Karremans & Van Lange, 2004), reductions in anger, grief, anxiety and depression (Coyle & Enright, 1997; Freedman & Enright, 1996) and problematic conflict (Fincham, Beach, & Davila, 2007). The majority of evidence from cross-sectional and longitudinal

studies of forgiveness shows that forgiveness promotes more satisfying relationships (Fincham & Beach, 2007; Paleari, Regalia, & Fincham, 2005), though some evidence suggests that forgiveness may not be as adaptive in relationships marked by high levels of negative conflict (McNulty, 2008, 2010). However, the link between forgiveness and relationship satisfaction has focused largely on offense specific forgiveness, not the more general tendency to forgive. The tendency to forgive is distinct from offense-specific forgiveness because it is thought to reflect a trait-like attribute that is consistent across time, romantic partners, and situations (Brown, 2003). While offense-specific forgiveness occurs for a single transgression with a specific partner in specific contextual factors (e.g., the nature of the relationship, the offended individual's attribution for the offense, etc.), the tendency to forgive does not reflect highly contextualized situational factors; instead, it focuses on the broader tendency toward forgiveness across many contexts and situations.

One study that examined trait forgiveness assessed this general tendency to forgive using hypothetical offenses and asking participants to indicate how likely they would forgive the offender under those circumstances. In this study, they found that trait forgiveness marginally, prospectively predicted relationship satisfaction for husbands 12–14 months after initial participation and responses (Maio, Thomas, Fincham, & Carnelley, 2008). But because this study chiefly set out to examine other research questions about family roles and forgiveness, it did not provide much information about when and how trait forgiveness operates in romantic relationships. In this set of studies, we focused on understanding under what conditions trait forgiveness operates, and

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whether it might be an important mechanism of action, in promoting relationship health.

### 3. Forgiveness and the VSA model

With the exception of Kelley and Thibault's interdependence theory (1978), forgiveness theories have rarely been connected to broader theories in couple research. Another aim of this paper, therefore, is to make clear connections between the forgiveness literature and one of the important models in couple research, the VSA model (Karney & Bradbury, 1995). As its name implies, the VSA model has three major parts: enduring vulnerabilities, adaptive processes, and stress. Enduring vulnerabilities are traits, temperaments, or experiences that inhibit the ability to have a happy, successful marriage (e.g. poor communication skills, a traumatic childhood event, neuroticism). Adaptive processes—the hallmark examples of which are couple communication and conflict management—are interactive processes that occur within the couple relationship and are influenced by both partners' enduring vulnerabilities. Stress, as induced by short or long term life events, is a potent predictor of couple functioning, hampering even the adaptive processes of couples that come to marriage with few enduring vulnerabilities. These major components—enduring vulnerabilities, adaptive processes and stress—interact with one another to predict changes in relationship satisfaction, which go on to predict divorce.

The VSA model is useful for understanding couple processes from a basic research perspective as well as from a more applied research perspective that seeks to understand how to intervene and alter the course of marriage. Thus, making clear connections between this model and forgiveness research may help advance our understanding in both realms of research. In the present set of studies, we focus on the enduring vulnerabilities component and conceptualize problematic cognitive tendencies and personality traits as enduring vulnerabilities that are associated with less trait forgiveness and, in turn, less relationship satisfaction.

#### 3.1. Cognitive tendencies as enduring vulnerabilities

Though initial efforts to treat couple distress were purely behavioral (Jacobson & Margolin, 1979), over time treatments expanded to include cognitions. Today, most approaches to couple treatment include cognitive elements in their conceptualizations of couple distress and treatment, even if they emphasize other processes such as acceptance (Jacobson & Christensen, 1996) or emotion (Johnson, 2004). It is surprising to note, therefore, the relative lack and narrow foci of research exploring how specific cognitive tendencies are associated with relationship satisfaction. In the early years of the transition to cognitive models there was some focus on relationship-specific cognitions (“disagreement is destructive”, “partners don't change”, etc.), but the majority of research on cognition in marriage has focused on attributions for partner behavior (Bradbury & Fincham, 1990). General cognitive tendencies (such as a tendency to ruminate, catastrophize, engage in “all or nothing” reasoning) were left largely unexplored. But these general cognitive tendencies are important to examine because, within the VSA framework, they may represent enduring vulnerabilities that influence adaptive processes. If so, the study of general cognitive tendencies may help us to identify, even prior to partner selection, individuals with an elevated risk for relationship problems. In the present studies, we aim to advance our understanding of the associations between cognitive tendencies, personality traits, relationship outcomes, and the mechanisms by which they operate.

### 4. The connection between cognitive tendencies and forgiveness

In contrast to the broader literature on couples, forgiveness research has made substantial progress in understanding how general cognitive

tendencies and personality traits can facilitate or inhibit forgiveness. Among the factors that inhibit forgiveness, a person's cognitive tendencies may be one of the most influential because forgiveness is an intrapersonal process with behavioral consequences. In nearly all conceptualizations of forgiveness, forgiveness entails a shift away from hostile thoughts and actions toward a transgressor (Kearns & Fincham, 2004); in some conceptualizations it also includes a shift past neutrality toward more pro-social cognitions and behaviors (McCullough, Fincham, & Tsang, 2003). This shift can be hindered or helped by how the offended person perceives the offense and the transgressor. For example, researchers have found that pro-relationship cognitions facilitate forgiveness, while being mistrustful and self-protective inhibits forgiveness (Gerlach, Allemand, Agroskin, & Denissen, 2012).

A more general cognitive tendency that has been repeatedly shown to influence forgiveness is the tendency to ruminate. McCullough et al. (1998) showed that rumination was related to decreased forgiveness and more retaliatory impulses toward an offender. However, Kachadourian, Fincham, and Davila (2005) found that the tendency to ruminate only impacted forgiveness in couples when it interacted with ambivalence toward the partner. There is also some evidence that rumination decreases over time in response to increases in forgiveness (McCullough et al., 1998).

To date, forgiveness researchers have examined the association between non-specific ruminative tendencies and forgiveness but they have not considered how specific forms of rumination may impact forgiveness. Because rumination has been linked to various problematic interpersonal behaviors and outcomes, and a number of different types of rumination may exist (Watkins, 2008), it is important to explore other forms of rumination in the context of forgiveness. In the present research, we examined catastrophizing or the ruminative tendency to chronically emphasize the potentially negative implications or consequences of an event (Garnefski, Kraaij, & Spinhoven, 2001). For example, a typical response to an interpersonal transgression for someone who has a tendency to catastrophize would be repetitively thinking “This is the absolute worst thing my partner could have done!” Since previous research has shown that the tendency to ruminate on partner transgressions decreases forgiveness, it is likely that catastrophizing may have a similar effect.

But perhaps research on these proximal cognitive tendencies reflects a higher order trait that has been well studied in the couple literature: neuroticism. Neuroticism is a personality trait marked by a tendency to experience high, enduring levels of negative emotion, especially in response to stress (Fisher & McNulty, 2008). Neuroticism is often framed as the opposite of “emotional stability”. A person high in emotional stability is less likely to perceive offense or to experience persisting distress after some negative event. In contrast, negative events tend to be more distressing to neurotic individuals, they tend to be more likely to perceive offense, and negative emotions tend to “stick” to them for longer. Prominent researchers of this trait have suggested that “many studies of the relation between negative affectivity and adverse outcomes focus on fine-grained traits that might be considered facets of neuroticism” (Lahey, 2009, p. 241). Neuroticism has been shown in a number of studies to be a potent predictor of relationship satisfaction, even over a span of 50 years (Kelly & Conley, 1987). Furthermore, neuroticism correlates substantially with depression and anxiety (Kendler, Neale, Kessler, Heath, & Eaves, 1993; Khan, Jacobson, Gardner, Prescott, & Kendler, 2005) and these conditions have also demonstrated associations with rumination (Nolan, Roberts, & Gotlib, 1998) and catastrophizing (Goubert, Crombez, & Van Damme, 2004). Research has also shown that neuroticism is related to decreased forgiveness through angry hostility (Brose, Rye, Lutz-Zois, & Ross, 2005) and vengeful ruminations (Berry, Worthington, O'Connor, Parrott, & Wade, 2005). Moreover, it is possible that what researchers have called “trait forgiveness” is actually just reflective of low levels of neuroticism given the established correlation between forgiveness and neuroticism (Brown, 2003; Steiner, Allemand, & McCullough, 2011).

The present study seeks to contribute to the literature by exploring whether forgiveness acts as a mediating mechanism in explaining the association between neuroticism and relationship satisfaction. Despite the fact that a great deal of research has implicated neuroticism as harmful to relationships, researchers have only begun to illuminate potential mechanisms that drive the association between neuroticism and these outcomes (e.g., Cauhlin, Huston, & Houts, 2000; Donnellan, Conger, & Bryant, 2004; Fisher & McNulty, 2008).

## 5. The present studies

To disentangle the effects outlined above and determine whether proximal (the tendency to catastrophize) and distal (neuroticism) traits have a non-redundant impact on relationship satisfaction via forgiveness, we explore these constructs in two studies. In the first, we test whether forgiveness is a plausible mechanism of action, mediating the relationship between neuroticism and relationship satisfaction over time. In the second, we add catastrophic rumination to our theoretical model to see if it explains incremental variance in these outcomes when controlling for neuroticism and relationship satisfaction. Because previous research has shown that rumination may function in harmful ways only when an individual is ambivalent about their relationship, we included ambivalence and an interaction of catastrophic rumination and ambivalence in predicting forgiveness and relationship satisfaction.

In the present studies, we examined emerging adults in committed relationships. Emerging adults are an increasingly important target for intervention efforts designed to prevent poor relationship outcomes (Braithwaite, Lambert, Fincham, & Pasley, 2010) because emerging adulthood is a time when individuals are particularly open to learning about romantic relationships and tend to establish expectations and behavior patterns (Fincham, Stanley, & Rhoades, 2011). Moreover, recent survey data suggest that a burgeoning minority of Americans are delaying marriage or forgoing marriage entirely; thus, relationships traditionally termed premarital unions are becoming their own form of enduring relationships and are increasingly becoming the context for childrearing (Centers for Disease Control and Prevention, 2013) and are worthy of study in their own right.

To best test our research questions, we used a longitudinal design to control for the stability of relationship satisfaction over the course of approximately 3.5 months, allowing for a test of whether the findings observed in Study 1 are specific to forgiveness or simply reflective of global relationship satisfaction and the tendency of positively valenced constructs to correlate with each other. Similarly, we will account for the stability of forgiveness over time in order to examine whether forgiveness mediates changes in relationship satisfaction over time while accounting for the influence of neuroticism—this presents a high hurdle for trait forgiveness to clear in demonstrating incremental prediction. If forgiveness predicts relationship satisfaction when controlling for the stability of relationship satisfaction as well as neuroticism, it provides evidence of a robust relationship between trait forgiveness and changes in relationship satisfaction over time.

## 6. Study 1

### 6.1. Method

#### 6.1.1. Participants and procedure

Data were drawn from a larger study that took place in an introductory course on families across the lifespan.<sup>1</sup> We obtained approval from the university Institutional Review Board prior to collecting any data. Undergraduates who identified themselves as being in a committed romantic relationship across the entire semester ( $N = 355$ ) took part in

this portion of the larger study. We did not specifically select for distressed couples nor for those seeking mental health services; rather we attempted to obtain a large sample of college students from a class that fulfilled a general education requirement as would thus be fairly representative of emerging adults in romantic relationships in college. At the beginning and end of the semester (a time span of approximately 3.5 months), participants completed an on-line survey that included numerous measures, including those described below. Length of the romantic relationship was distributed as follows: 2 years or longer, 34%; 1–2 years, 22%; 7–12 months, 18% and 3–6 months, 26%. Cohabitors made up 14% of the sample. The average age of the sample was 19.9 (3.06). Women made up 82% of the sample and the ethnic background of the sample was distributed as follows: Caucasian, 68%; African-American, 12%; Latino, 11%, Asian, 2%, and “Other” (e.g. Pacific Islander, Mixed Ethnicity, etc.), 7%.

### 6.1.2. Measures

**6.1.2.1. Forgiveness.** Forgiveness was assessed using nine items that respondents rated following the statement “When my partner wrongs or hurts me...” on a six-point scale ranging from “strongly disagree” to “strongly agree.” Three items assessed avoidance (“I tend to give him/her the cold shoulder”, “I don’t want to have anything to do with her/him”, “I tend to withdraw from my partner”), benevolence (“I soon forgive my partner”, “It is easy to feel warmly again toward him/her”, “I am able to act as positively toward him/her as I was before it happened”) and retaliation (“I find a way to make her/him regret it”, “I tend to do something to even the score”, “I retaliate or do something to get my own back”), respectively. The nine items were scored so that higher scores reflected a greater tendency to forgive. Items from this scale have shown good reliability ( $\alpha = .87$ ) and convergent/discriminant correlations in previous research (Fincham, Beach, Lambert, Stillman, & Braithwaite, 2008). In this study,  $\alpha = .86$ . Descriptive statistics (see Table 1) suggest that our participants tended to be moderately likely to forgive at T1 and T2. (See Table 2.)

**6.1.2.2. Neuroticism.** Neuroticism was assessed using six items from the Revised NEO-FFI neuroticism scale (Costa & McCrae, 1992). Example items include: “I am not a worrier” (reverse scored), “I often feel inferior to others,” and “I often feel tense and jittery.” Items were rated on a five-point scale with lower scores indicating lower levels of neuroticism and higher scores indicating higher levels of neuroticism. In the present study,  $\alpha = .74$ . For our sample, the mean ( $M = 2.59$ ,  $s = 0.72$ ) for participants fell in the middle of the neuroticism’s five-point scale indicating moderate amounts of neuroticism.

**6.1.2.3. Positive and Negative Qualities in Marriage Scale (PANQMS).** Unlike single-dimension, bipolar measures of relationship quality that predominate in psychology, the PANQMS asks partners to independently rate how positively they feel toward their partner and how negatively they feel about their partner. This allows for examination of positive and negative dimensions in romantic relationships, providing a clearer view of individuals who may be ambivalent (have high positive and high negative perceptions of their partner), indifferent (have low positive and low negative perceptions of their partner), etc. This scale has demonstrated good psychometric properties and construct validity (Fincham & Linfield, 1997). In our sample, alpha for the positive scale was .96; for the negative quality scale it was .95. We analyzed responses to the PANQMS using kmeans cluster analysis in Stata 13.1 (StataCorp, 2011) to generate a four-group cluster solution. These four clusters provided a readily interpretable solution with a clear ambivalent cluster (high on both positive and negative ratings of the partner). We used this to create an ambivalent dummy variable where 1 indicated membership in the ambivalent cluster and 0 indicated they did not. Approximately 15% ( $n = 53$ ) of the sample was classified as being ambivalent.

<sup>1</sup> Author & Author (YEAR), which explored different research questions, also reported the forgiveness and relationship satisfaction of some of the same participants in Study 1 and Study 2.

**Table 1**  
Descriptive statistics for Study 1.

	Female	T1 CSI 1	T1 CSI 2	T1 CSI 3	T1 CSI 4	T2 CSI 1	T2 CSI 2	T2 CSI 3	T2 CSI 4	T1 Forgive	T2 Forgive	Neuroticism	Soc Desire	Ambiv
Mean	0.82	4.14	4.20	4.38	4.27	4.14	4.18	4.30	4.25	4.71	2.59	2.59	5.52	0.15
Std. Dev.	0.39	1.03	1.04	0.92	1.16	1.06	1.07	1.01	1.17	0.78	0.72	0.72	1.90	0.36
Female	1.00													
T1 CSI 1	0.00	1.00												
T1 CSI 2	0.04	0.86***	1.00											
T1 CSI 3	0.10	0.81***	0.84***	1.00										
T1 CSI 4	−0.04	0.76***	0.73***	0.71***	1.00									
T2 CSI 1	0.04	0.45***	0.44***	0.39***	0.43***	1.00								
T2 CSI 2	0.03	0.45***	0.47***	0.41***	0.41***	0.90***	1.00							
T2 CSI 3	0.12*	0.43***	0.44***	0.45***	0.42***	0.84***	0.86***	1.00						
T2 CSI 4	−0.03	0.44***	0.43***	0.41***	0.49***	0.79***	0.76***	0.72***	1.00					
T1 Forgive	0.02	0.44***	0.42***	0.41***	0.36***	0.20***	0.27***	0.28***	0.23***	1.00				
T2 Forgive	0.01	0.41***	0.41***	0.34***	0.32***	0.44***	0.47***	0.46***	0.41***	0.60***	1.00			
Neuroticism	0.19***	−0.24***	−0.20***	−0.18**	−0.18**	−0.25***	−0.26***	−0.25***	−0.28***	−0.18***	−0.28***	1.00		
Soc Desire	−0.04	0.11*	0.10	0.07	0.09	0.09	0.08	0.07	0.07	0.23***	−0.26***	−0.26***	1.00	
Ambiv	−0.07	−0.30***	−0.28***	−0.25**	−0.17**	−0.22***	−0.23***	−0.21***	−0.22***	−0.23***	−0.21***	0.09	−0.05	1.00

Note. CSI = Couples Satisfaction Index, \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

6.1.2.4. *Social desirability.* Social desirability was measured using a ten-item version of the Marlowe-Crowne social desirability scale (Strahan & Gerbasi, 1972). Participants indicated whether given statements were true or false (e.g., “I never hesitate to go out of my way to help someone in trouble.”) with higher scores (ranging from 0 to 10) indicating a higher need to be seen in a favorable light. For this short form, KR20 = .51. Participant scores indicate our sample had moderately high social desirability on average.

6.1.2.5. *Couples Satisfaction Index (CSI).* Starting with 180 items previously used to assess relationship satisfaction, Funk and Rogge (2007) conducted an Item Response Theory analysis to develop a 4-item measure of relationship satisfaction with optimized psychometric properties. This measure correlates .87 with the widely used Dyadic Adjustment Scale and −.79 with the Ineffective Arguing Inventory. These four items were used to define the latent variable Relationship Satisfaction at T1 and T2; each loaded strongly on their respective latent variables with standardized loadings ranging from .80 to .95.

Regarding relationship satisfaction, the majority of participants had scores in a similar to slightly higher range as the normative sample for the Couples Satisfaction Index (CSI-4; Funk & Rogge, 2007). The normative mean of the CSI-4 is 16 (SD = 4.7); in our sample baseline CSI-4 scores were mean = 17.0 (SD = 3.8) and follow-up scores were mean = 16.8 (SD = 4.0). Using clinical cutoffs for relationship distress, 67 participants (19% of the sample) were distressed at baseline and 66 participants (19% of the sample) were distressed at follow-up. This rate of distress is comparable to samples of married couples who have

been married for 2 years, where a 20% rate of marital distress have been observed (Beach, Fincham, Amir, & Leonard, 2005).

## 6.2. Results and discussion

### 6.2.1. Data analysis

We used structural equation modeling (SEM) in Stata 13.1 to examine our hypotheses. Structural equation modeling is well suited to our research questions because it allows for simultaneous tests of each hypothesis while accounting for the contextual influence of all the other variables in the theoretical model including, most notably, the stability of relationship satisfaction and trait forgiveness over the course of a semester. Additionally, it allows us to examine the common variance in latent constructs while partitioning out error variance, which increases statistical power. Relatedly, SEM allows us to explicitly model error rather than making the untenable assumption of errorless measurement, as we are forced to assume with techniques like ordinary least squares regression (Jaccard & Wan, 1995).

Mediation analyses were conducted using the RMediation package for estimating confidence intervals for our indirect effects (Tofghi & MacKinnon, 2011). The analyzed model, including fit indices and standardized estimates (with 95% confidence intervals) can be seen in Fig. 1. Instead of using a null hypothesis testing approach with a focus on p-values and dichotomous decision rules without reference to the size of effects, we report effect sizes (standardized structural coefficients) and confidence intervals where an effect is considered statistically

**Table 2**  
Descriptive statistics for Study 2.

	T1 CSI 1	T1 CSI 2	T1 CSI 3	T1 CSI 4	T2 CSI 1	T2 CSI 2	T2 CSI 3	T2 CSI 4	T1 Forgive	T2 Forgive	Catast	Neurot
Mean	4.22	4.20	4.38	4.27	4.14	4.18	4.30	4.25	4.71	2.59	2.59	5.52
Std. Dev.	1.03	1.04	0.92	1.16	1.06	1.07	1.01	1.17	0.78	0.72	0.72	1.90
T1 CSI 1	1.00											
T1 CSI 2	0.85***	1.00										
T1 CSI 3	0.80***	0.81***	1.00									
T1 CSI 4	0.73***	0.73***	0.70***	1.00								
T2 CSI 1	0.42***	0.40***	0.38***	0.36***	1.00							
T2 CSI 2	0.41***	0.40***	0.38***	0.36***	0.90***	1.00						
T2 CSI 3	0.38***	0.36***	0.39***	0.31***	0.78***	0.79***	1.00					
T2 CSI 4	0.37***	0.37***	0.36***	0.43***	0.73***	0.73***	0.63***	1.00				
T1 Forgive	0.32***	0.30***	0.31***	0.28***	0.20***	0.22***	0.19***	0.14**	1.00			
T2 Forgive	0.25***	0.23***	0.25***	0.22***	0.28***	0.31***	0.30***	0.24***	0.52***	1.00		
Catast	−0.08	−0.08	−0.10	−0.09	−0.20***	−0.20***	−0.20***	−0.11	−0.18***	−0.30***	1.00	
Neuroticism	−0.31***	−0.30***	−0.35***	−0.26***	−0.20***	−0.22***	−0.17**	−0.16**	−0.35***	−0.29***	0.30***	1.00

Note. CSI = Couples Satisfaction Index, \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

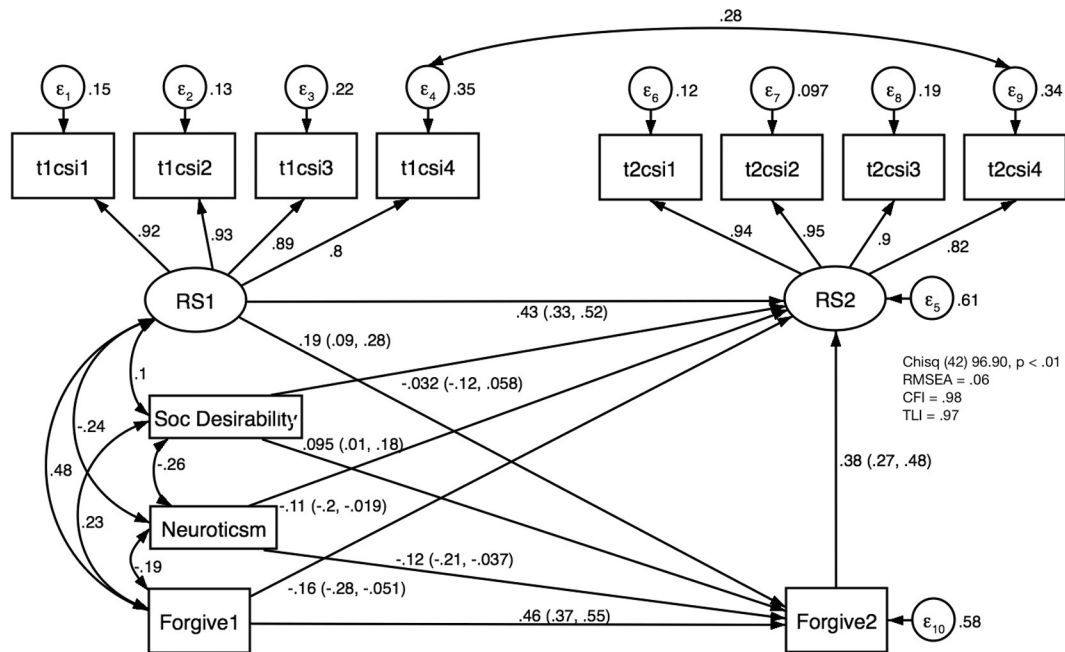


Fig. 1. Study 1 model with standardized estimates and 95% confidence intervals.

significant if the observed confidence interval does not include zero (Cumming, 2014).

**6.2.1.1. Testing for issues within the sample.** Because women were over-represented in our sample, we tested for difference in parameter estimates for men and women to address the possibility that our findings were being driven by our female participants. To do this, we ran a model using sex as a grouping variable and tested for differences between men and women for structural coefficients; none were moderated by participant sex. To further address potential concerns about the emerging adult nature of our sample, we included relationship length as a covariate. Relationship length was not associated with outcomes nor did including it in the model change the pattern of results so for ease of presentation we did not include it in the Study 1 model.

**6.2.1.2. What are the direct effects of forgiveness, neuroticism on relationship satisfaction when controlling for the longitudinal stability of relationship satisfaction and forgiveness?** As expected, relationship satisfaction was stable over the course of an academic semester ( $\beta = .43$ , 95% CI [.33, .52]). Neuroticism was associated with T2 relationship satisfaction ( $\beta = .11$ , 95% CI [−.20, −.02]). Forgiveness at T2 robustly predicted relationship satisfaction ( $\beta = .38$ , 95% CI [.27, .48]), suggesting that forgiveness has a unique relationship with relationship satisfaction above and beyond the effects of neuroticism and the stability of relationship satisfaction. Earlier forgiveness appears to operate largely via later forgiveness (Indirect effect  $\beta = .17$ , 95% CI [.12, .24]); when controlling for T2 Forgiveness, the direct effect of T1 forgiveness on T2 relationship satisfaction was negative ( $\beta = -.16$ , 95% CI [−.28, −.05]). This could represent an empirical suppression effect (given the positive zero order correlation between T1 forgiveness and T2 relationship satisfaction) or it could suggest that past forgiveness can erode relationship satisfaction in a process that is distinct from the positive, helpful role of current forgiveness (McNulty, 2008, 2010); we tested the same association in a separate sample in Study 2 to see whether this pattern replicates.

**6.2.1.3. What inhibits or enhances forgiveness?** Relationship satisfaction at baseline was associated with higher levels of T2 forgiveness ( $\beta = .19$ , 95% CI [.09, .28]) suggesting that relationship satisfaction enhances one's tendency to forgive over time. In contrast, neuroticism was

associated with less forgiveness ( $\beta = -.12$ , 95% CI [−.21, −.04]). To test whether a tendency to present oneself in a positive light is driving these associations we also included a measure of social desirability in our model. Social desirability was associated with more forgiveness, but including this variable did not fully explain forgiveness and relationship satisfaction outcomes, suggesting that neuroticism and relationship satisfaction have unique relationships with forgiveness even when controlling the stability of forgiveness and social desirability.

**6.2.1.4. Does ambivalence change the nature of these associations?** To test this question, we ran the same model but used our ambivalence indicator as a grouping variable and tested for differences between groups for relevant structural coefficients; the relationship between neuroticism and outcomes was not moderated by ambivalence. The most important implication of this finding is that it suggests neuroticism does not require the catalyst of ambivalence to yield associations with forgiveness. This finding is inconsistent with findings from Kachadourian et al. (2005), who showed that rumination—which may be one of several proximal manifestations of the broader construct of neuroticism—is harmful only when individuals are ambivalent about their relationship partner. This may suggest that neurotic tendencies operate in a way that is distinct from more specific manifestations of neuroticism (such as rumination). To test this possibility, in Study 2 we will include the tendency to catastrophize—which has been shown in recent years to manifest as a particular type of rumination (Selby, Anestis, & Joiner, 2008)—as a more specific manifestation of neuroticism in order to determine whether these more proximal manifestations operate differently (i.e., only negative under conditions of ambivalence).

## 6.2.2. Mediation

**6.2.2.1. Does forgiveness mediate the effect of neuroticism on relationship satisfaction?** Forgiveness mediated the effect of neuroticism on relationship satisfaction (indirect effect  $\beta = -.05$ , 95% CI [−.08, −.01]), suggesting that individuals higher in neuroticism have a harder time forgiving their partners and that this lack of forgiveness erodes relationship satisfaction over time. We computed an effect ratio following the Shrout and Bolger (2002) approach using the direct effect of neuroticism on forgiveness with forgiveness at both time points set to zero (but controlling for social desirability and the longitudinal stability of relationship

satisfaction) as our c path ( $\beta = -.16$  95% CI  $[-.25, -.06]$ ); this analysis revealed that 31% of the effect of neuroticism on relationship satisfaction operates via reductions in forgiveness.

**6.2.2.2. Does forgiveness mediate the stability of relationship satisfaction over time?** Forgiveness mediated the stability of relationship satisfaction over time (indirect effect  $\beta = .07$  95% CI  $[.02, .11]$ ) suggesting that more forgiveness is a mechanism of action in improving relationship satisfaction over time. Using the direct effect of T1 relationship satisfaction on T2 relationship satisfaction with forgiveness at both time points set to zero (but controlling for neuroticism and social desirability), we computed a c path ( $\beta = .51$  95% CI  $[.42, .59]$ ) and an effect ratio indicating that 14% of the stability of relationship satisfaction operates via the ability to forgive the partner when accounting for neuroticism, social desirability and the temporal stability of relationship satisfaction.

## 7. Study 2

A number of key findings emerged in Study 1. Forgiveness and neuroticism were directly associated with relationship satisfaction. Forgiveness mediated the effect of neuroticism on relationship satisfaction and forgiveness mediated the longitudinal stability of relationship satisfaction over time—an important finding as this relationship has been inconsistent in existing literature. Study 1 was also the first to show that forgiveness mediates the effect of neuroticism on relationship satisfaction. Despite neuroticism's frequently observed effect on relationship satisfaction, there is not a great deal of research showing us how neuroticism does its damage to relationships. Identifying mechanisms of action is an important task because these mediating variables can be used as "tools" in interventions. If a tendency to catastrophize and forgive mediate the effect of neuroticism on relationship satisfaction, interventions for couples might be enhanced by employing elements that attempt to minimize catastrophizing and foster healthy patterns of forgiveness for individuals who are high in neuroticism. Thus, Study 2 includes a tendency to catastrophize in our theoretical model to determine whether this specific cognitive tendency acts as a mechanism of action for neuroticism as it relates to forgiveness and relationship satisfaction.

### 7.1. Method

#### 7.1.1. Participants

The data used in Study 2 ( $N = 354$ ) came from a second data set obtained using the same procedures as in Study 1 (no participants in Study 1 were included in Study 2). The average age of respondents in the sample was 19.6 (1.5). Women made up 86% of the sample and the ethnic background of the sample was distributed as follows, Caucasian, 69%; African-American, 11%; Hispanic, 10% and "Other" (e.g. European, Mixed Ethnicity, etc.), 10%. Length of the romantic relationship was distributed as follows: 3–4 months, 14%; 5–6 months, 10%; 7–12 months, 20%; 1–2 years, 25%; 2 years or more, 31%. Cohabitors made up 10% of the sample.

#### 7.1.2. Procedure

Participants completed an online survey that measured the variables described below. Approximately three-and-a-half months after the initial assessment of relationship satisfaction, participants again reported on relationship satisfaction thus allowing for an examination of the impact of forgiveness, neuroticism, catastrophizing and ambivalence while controlling for the temporal stability of relationship satisfaction and forgiveness.

#### 7.1.3. Measures

**7.1.3.1. Cognitive Emotion Regulation Questionnaire (CERQ).** This scale assesses the use of various cognitive strategies used to regulate emotion, specifically when experiencing negative affect. We used the

catastrophizing subscale which measures the tendency of individuals to focus their attention on the negative consequences that a recent event may have. The catastrophizing subscale is thought to represent a specific form of rumination, has a strong correlation with rumination, and loads well onto a latent variable with other measures of rumination (Selby et al., 2008). Response options ranged from 1 (Never) to 5 (Almost Always). After being asked to indicate how they generally respond after a negative or unpleasant event participants are asked to respond to statements such as, "I keep thinking about how terrible it is what I have experienced", and "I often think that what I have experienced is the worst that can happen to a person." This subscale has shown good discriminant and convergent validity (Garnefski et al., 2001). In the present sample,  $\alpha = .87$ .

We used the same measures of relationship satisfaction, forgiveness, neuroticism, and positive and negative qualities in marriage that were used in Study 1 and observed similar values for these constructs in Study 2 relative to values observed in Study 1. We used the same procedure for identifying individuals who felt ambivalence about their partner and were, again, able to obtain a four-cluster solution with a clear ambivalent cluster (high on both positive and negative ratings of the partner). We used this to create an ambivalent dummy variable where 1 indicated membership in the ambivalent cluster. Approximately 17% ( $n = 61$ ) of the sample was classified as ambivalent.

Levels of relationship satisfaction were similar to those observed in Study 1: relationship satisfaction, baseline CSI-4 scores were mean = 17.1 (SD = 3.9) and follow-up scores were mean = 16.7 (SD = 4.0). Using clinical cutoffs for relationship distress, 65 participants (19% of the sample) were distressed at baseline and 80 participants (23% of the sample) were distressed at follow-up. Again, these rates of distress mirror those observed in newlywed populations.

### 7.2. Results

#### 7.2.1. Analytic approach

We used the same analytic approach as in Study 1. The analyzed model, including fit indices and standardized estimates can be seen in Fig. 2. We again tested for differences in parameter estimates for men and women. The path from forgiveness to T2 relationship satisfaction was significant ( $\chi^2(1) = 4.18, p = .04$ ) such that it was stronger for men ( $\beta = .45$ , 95% CI  $[.15, .74]$ ) than for women ( $\beta = .16$ , 95% CI  $[.04, .28]$ ). No other structural relationships were moderated by participant sex. Again, to further address potential concerns about the emerging adult nature of our sample, we included relationship length as a covariate. Relationship length was not associated with outcomes nor did including it in the model change the pattern of results so it is not shown in the Study 2 model.

**7.2.1.1. What are the direct effects of forgiveness, neuroticism and ambivalence on relationship satisfaction when controlling for the longitudinal stability of relationship satisfaction?** Again, relationship satisfaction was stable over time ( $\beta = .43$ , 95% CI  $[.33, .53]$ ). Unlike in Study 1, neuroticism was not significantly associated with T2 relationship satisfaction ( $\beta = .01$ , 95% CI  $[-.11, .10]$ ) because the proximal effect of catastrophizing accounted for variance previously explained by neuroticism (in a model with catastrophizing constrained to zero,  $\beta = -.10$ , 95% CI  $[-.20, -.01]$ ). Again, T2 forgiveness predicted T2 relationship satisfaction ( $\beta = .19$ , 95% CI  $[.08, .30]$ ), suggesting that forgiveness has a unique relationship with relationship satisfaction above and beyond the effects of neuroticism, catastrophizing, and the stability of relationship satisfaction but including catastrophic rumination appears to have attenuated this relationship (this parameter estimate in Study 1  $\beta = .38$ , 95% CI  $[.27, .48]$ ). As in Study 1, earlier forgiveness appears to operate largely via later forgiveness (Indirect effect  $\beta = .08$ , 95% CI  $[.03, .14]$ ); but unlike Study 1, when controlling for T2 Forgiveness, the direct effect of T1 forgiveness on T2 relationship satisfaction was not significant ( $\beta = -.06$ , 95% CI  $[-.17, .06]$ ). Catastrophizing also predicted

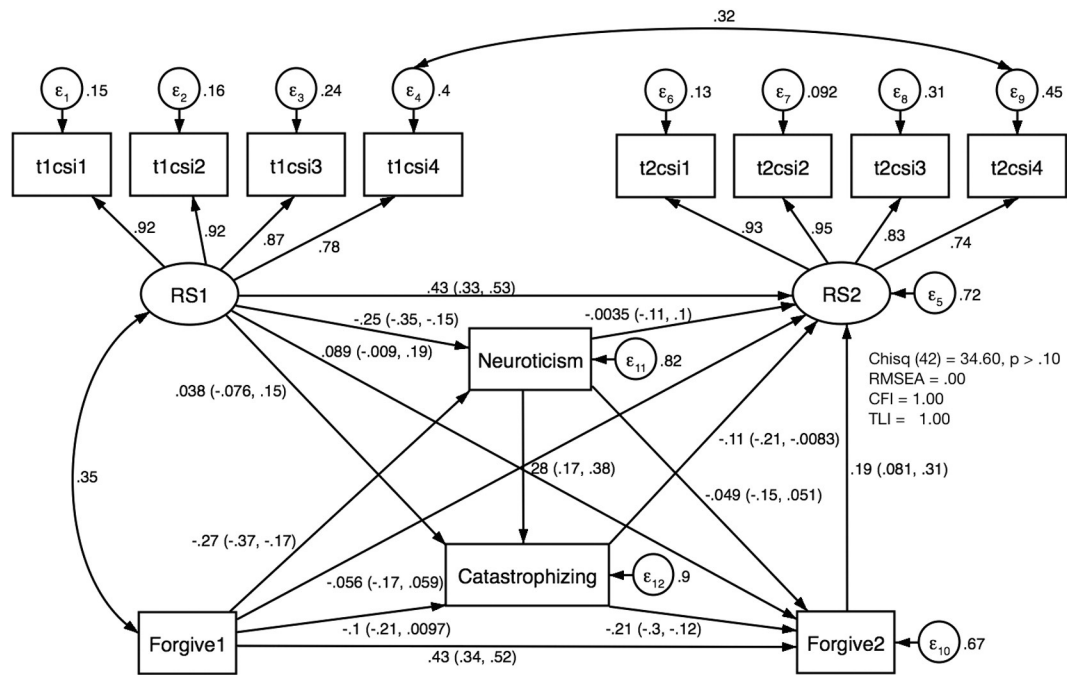


Fig. 2. Study 2 model with standardized estimates and 95% confidence intervals.

relationship satisfaction ( $\beta = -.11$ , 95% CI  $[-.21, -.01]$ ), suggesting that this more proximal manifestation of neuroticism has an association with relationship satisfaction whereas the more global neuroticism does not; perhaps because it operates as a mechanism of action for neuroticism—we test this hypothesis below.

**7.2.1.2. What inhibits or enhances forgiveness?** Relationship satisfaction at baseline was marginally associated with higher levels of T2 forgiveness ( $\beta = .09$ , 95% CI  $[-.01, .19]$ ); again, this was approximately half the effect of this path in the Study 1 model. In contrast, neuroticism was not associated with less forgiveness when accounting for catastrophizing, which had a robust inhibitory effect on forgiveness ( $\beta = -.21$ , 95% CI  $[-.30, -.12]$ ).

**7.2.1.3. Does ambivalence change the nature of these associations?** To test this question we ran the same model but used our ambivalence indicator as a grouping variable and tested for differences between groups and found that ambivalence did not moderate the influence of neuroticism or catastrophizing on outcomes. Again, in a finding that is slightly different from existing research on general rumination, we found that the tendency to catastrophize does not require ambivalence to have a negative association with relationship satisfaction.

## 7.2.2. Mediation

**7.2.2.1. Do the mediating effects observed in Study 1 remain when we account for catastrophizing?** Forgiveness mediated the stability of relationship satisfaction over time when accounting for catastrophizing (indirect effect  $\beta = .02$ , 95% CI  $[.00, .04]$ ), but the lower bound of the confidence interval was zero (the equivalent of having a p-value of exactly .05). Using the c path ( $\beta = .46$ , 95% CI  $[\.36, .55]$ ), we computed an effect ratio and found that 4% of the stability of relationship satisfaction operated via the ability to forgive one's partner when controlling for neuroticism and catastrophizing. When accounting for catastrophizing, forgiveness no longer mediated the effect of neuroticism on relationship satisfaction (indirect effect  $\beta = -.01$ , 95% CI  $[-.03, .01]$ ).

**7.2.2.2. Does forgiveness mediate the effect of catastrophic rumination on relationship satisfaction?** Forgiveness mediated the effect of catastrophic rumination on relationship satisfaction (indirect effect  $\beta = -.04$ , 95% CI  $[-.07, -.02]$ ), suggesting that individuals who are more apt to engage in catastrophizing have a harder time forgiving their partners, and that this lack of forgiveness erodes relationship satisfaction over time. Setting the effects of forgiveness to 0, we computed the c path ( $\beta = -.15$ , 95% CI  $[-.25, -.05]$ ) and found that 27% of the effect of catastrophic rumination on relationship satisfaction operates via forgiveness.

**7.2.2.3. Does catastrophizing mediate the effect of neuroticism on forgiveness?** Catastrophizing mediated the effect of neuroticism on forgiveness (indirect effect  $\beta = -.06$ , 95% CI  $[-.10, -.03]$ ), suggesting that those who are more neurotic have a harder time forgiving because they engaged in more catastrophic thinking in the face of transgressions. We computed the c path ( $\beta = -.11$ , 95% CI  $[-.20, -.01]$ ) and found that 55% of the effect of neuroticism on forgiveness operates via catastrophizing.

## 8. Discussion

In these two studies of emerging adults in committed relationships in college, we set out to understand whether cognitive tendencies and underlying personality traits inhibit the tendency to forgive and, in turn, relationship satisfaction. We sought to contextualize these findings in the broader theoretical framework of the Vulnerability Stress Adaptation model. In Study 1, neuroticism and forgiveness predicted relationship satisfaction when controlling for social desirability and the stability of relationship satisfaction. We also found that individuals higher in neuroticism were less likely to forgive which, in turn, reduced relationship satisfaction; these effects were observed when controlling for the temporal stability of relationship satisfaction and forgiveness. Similarly, we found that relationship satisfaction predicted increased forgiveness which, in turn, increased relationship satisfaction over time. In Study 2, we found the tendency to catastrophize had direct, negative associations with relationship satisfaction whereas forgiveness had a positive direct association. We also observed that the tendency to



catastrophize inhibited trait forgiveness and forgiveness, in turn, was associated with less relationship satisfaction.

Forgiveness mediated the effect of catastrophizing on relationship satisfaction, providing evidence that these enduring vulnerabilities operate on relationship satisfaction via the mechanism of reduced forgiveness. We again found that forgiveness mediated changes in relationship satisfaction over time, with greater trait forgiveness predicting higher relationship satisfaction over time. Below we discuss the implications for these findings for research, and applied work on preventive interventions.

### 8.1. Implications for research

One aim of this paper was to conceptualize forgiveness in a VSA framework in an attempt to clarify how forgiveness research contributes to the VSA model. We framed catastrophic tendencies and neurotic temperaments as enduring vulnerabilities and showed that they exert a negative effect on relationship satisfaction via reductions in forgiveness. It is possible that trait forgiveness exerts its influence by increasing the frequency of offense specific forgiveness (which would be considered an adaptive process in the VSA model) but future research is needed to determine whether this is actually the case. Where, then, does the tendency to forgive fit in the VSA framework? Because of its dispositional nature, we suggest that it fits best into the enduring vulnerabilities portion of the VSA framework; however, we might term trait forgiveness an enduring asset for all couples except those who experience high levels of negative conflict (Mc Nulty & Fincham, 2012). Future research can also be helpful to solidify initial findings illustrated in these studies.

In both Study 1 and Study 2, forgiveness mediated changes in relationship satisfaction over time. This is a key finding since research has not painted a consistent picture when examining the temporal relationship between forgiveness and relationship satisfaction, perhaps due to emphasis on offense specific forgiveness. It makes sense that the tendency to forgive would play a greater role in the longitudinal course of a committed relationship than offense specific forgiveness because offense specific forgiveness is hyper-contextualized and may not reflect a more generalized tendency that would consistently operate in a way that influences relationships. In both studies, earlier trait forgiveness operated largely via later forgiveness.

In Study 1, but not Study 2, when controlling for T2 Forgiveness, the direct effect of T1 forgiveness on T2 relationship satisfaction was negative. This suggests the possibility that past forgiveness can erode relationship satisfaction in a process that is distinct from the positive, helpful role of current forgiveness, but this effect was not observed in Study 2. More research is needed that explores whether the tendency to forgive can have both positive and negative effects as a function of time.

These findings also help to illuminate the nomological network of the tendency to forgive. Research has yet to show that the tendency to forgive is not simply a manifestation of low-neuroticism (Brown, 2003; Steiner et al., 2011). By showing that forgiveness non-redundantly predicts relationship satisfaction even when accounting for the influence of neuroticism, we have provided evidence against this argument. We have also shown that trait forgiveness exerts a non-redundant impact on relationship satisfaction while controlling for the temporal stability of relationship satisfaction and forgiveness; an important finding given that positively valenced constructs tend to correlate, perhaps reflecting global relationship satisfaction.

Our study is among the first to provide evidence for a mechanism of action for neuroticism; specifically, we observed that those who are higher in neuroticism are less likely to forgive their partners and this lack of forgiveness leads to poorer relationship satisfaction.

However, forgiveness was only a partial mediator of this effect. A handful of studies have identified other potential mediators such as the couples' sexual relationship (Fisher & McNulty, 2008) and negative

patterns of communication (Cauhlin et al., 2000; Donnellan et al., 2004)—though the results for negative communication as a mediator are somewhat mixed (Karney & Bradbury, 1997). We also are one of the first to provide evidence for catastrophizing as a mechanism of action for neuroticism where those that are more neurotic experience greater difficulty forgiving potentially due to a tendency to amplify the negative implications of negative events or aspects of their relationships, resulting in reduced relationship satisfaction. This is an important line of inquiry to pursue because neuroticism has significant implications for well-being. For example, neuroticism is associated with poorer physical and mental health as well as use of health care services for these problems and may exert its effect on these outcomes via the mechanism of relational distress (see Lahey, 2009). Understanding the enduring vulnerabilities that influence behavioral tendencies in relationships seen in those with higher neuroticism (such as difficulty forgiving due to catastrophizing) is also important because it can potentially lead to more effective intervention methods.

### 8.2. Implications for practice/intervention

Interventions for couples often focus on changing cognitions, improving communication and generally taking advantage of known mechanisms of action to maximize a couple's chance at a lasting, fulfilling relationship. Rather than simply showing another association between forgiveness and some other process or outcome, our studies examined the conditions under which forgiveness operates, and whether it might be an effective “tool” in efforts to improve relationship outcomes. Our study has provided evidence that an additional target for premarital interventions or for couples with lower levels of distress—one related to the specific cognitive tendencies that are often the target of remediation in therapy—may be forgiveness. Indeed, the relative amount of variance in relationship satisfaction explained by forgiveness (14%) was second only to the stability of relationship satisfaction (18%) with neuroticism (1.2%) as a distant runner up.

Elements of existing interventions (see Coyle & Enright, 1997) such as asking participants to consider whether forgiveness is a healthy option in the face of a particular transgression, explaining what forgiveness is and is not, and so on could help couples understand when forgiveness is an adaptive process in order to make good use of it in their own relationship.

Moreover, there are no treatments for neuroticism per se, thus by identifying forgiveness as a mechanism by which neuroticism exerts an influence on relationship satisfaction (along with catastrophizing), we have identified a potential target for relationship interventions for individuals high in neuroticism.

### 8.3. Limitations/future directions

The present studies are limited by self-report assessment of the constructs we examined. Advances in the assessment of trait forgiveness have not moved past self-report measures; we see this as a critical next step for future research in this area. Further, our samples of emerging adult couples were in college, and thus not representative of those who are unable to seek higher education, or who choose not to do so. Although research has shown stability between relationship behaviors among emerging adults and married couples (Collins, 2003; Conger, Cui, Bryant, & Elder, 2000), we cannot say with certainty that these findings generalize to those who are married or who have children. Further, there is evidence for changes in the tendency to forgive over the life course (Steiner et al., 2011), thus future research would need to examine these questions in older populations to see whether the same associations hold. Related to this, it is possible that changes in relationship quality lead individuals to become more neurotic and catastrophic, but our design did not allow us to test for this possibility. Although our research did have a longitudinal component, the span of time examined was very brief and more research is needed to examine these

relationships over longer spans of time, particularly over the course of relationship transitions or the transition to parenthood.

Another direction for future research delves further into understanding individual differences and circumstantial variables that can affect the tendency to forgive. As mentioned previously, it may make sense that the tendency to forgive would play a greater role over the course of a committed relationship than offense-specific forgiveness that is hyper-contextualized. However, we acknowledge that circumstantial variables can still account for differences in an individual's overall tendency to forgive and uniformity of forgiving. For example, one study demonstrated the existence of sex differences in forgiving or breaking up in instances of emotional and sexual infidelity (Shackelford, Buss, & Bennett, 2002). As such, future research could attempt to clarify three-way interactions between individual differences in tendency to forgive, the nature of the offense, and outcome forgiveness and relationship satisfaction.

## 9. Conclusion

It has been said that a happy marriage is little more than a union of two good forgivers. If this is true, perhaps it is because forgiveness allows individuals to “clear the air” and avoid an ever-increasing backlog of resentment from partner transgressions that are an unavoidable part of close relationships. The safety valve of forgiveness is increasingly important when individuals are more sensitive to hurt or more likely to perceive insult and injury in day-to-day life (read: individuals high in neuroticism). Although recent research (McNulty, 2008, 2010) has wisely reminded us that partners who are too forgiving can experience harm in some circumstances, it is becoming increasingly clear that a lack of forgiveness is harmful to relationships under many circumstances.

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