

**Feeling Loved as a Strong Link in Relationship Interactions: Partners Who Feel Loved  
May Buffer Destructive Behavior by Actors Who Feel Unloved**

Eri Sasaki<sup>1</sup>, Nickola C. Overall<sup>1</sup>, Harry T. Reis<sup>2</sup>, Francesca Righetti<sup>3</sup>,  
Valerie T. Chang<sup>1</sup>, Rachel S.T. Low<sup>4</sup>, Annette M.E. Henderson<sup>1</sup>, Caitlin S. McRae<sup>1</sup>, Emily J.  
Cross<sup>5</sup>, Shanuki D. Jayamaha<sup>1</sup>, Michael R. Maniaci<sup>6</sup>, & Camille J. Reid<sup>1</sup>

<sup>1</sup>University of Auckland

<sup>2</sup>Univeristy of Rochester

<sup>3</sup>Vrije Universiteit Amsterdam

<sup>4</sup>Victoria University of Wellington

<sup>5</sup>University of Essex

<sup>6</sup>Florida Atlantic University

*Author Note:* This research was supported by The John Templeton Foundation (grant 61280) via project funding awarded by The Love Consortium to Eri Sasaki, a Royal Society of New Zealand (RSNZ) Marsden Fund grant (UOA0811) awarded to Nickola Overall, a RSNZ Marsden grant (UOA1712) awarded to Nickola Overall and Annette Henderson, a Fetzer Institute grant awarded to Harry Reis, and a Netherlands Organization for Scientific Research grant awarded to Francesca Righetti (Veni Grant No. 451-12-024). The materials, data and syntax for the results presented in this paper are available on the Open Science Framework: <https://osf.io/m4jnd/>

## Abstract

Feeling loved (loved, cared for, accepted, valued, understood) is inherently dyadic, yet most prior theoretical perspectives and investigations have focused on how actors feeling (un)loved shapes actors' outcomes. Adopting a dyadic perspective, the present research tested whether the established links between actors feeling unloved and destructive (critical, hostile) behavior depended on partners' feelings of being loved. Does feeling loved need to be mutual to reduce destructive behavior, or can partners feeling loved compensate for actors feeling unloved? In five dyadic observational studies, couples were recorded discussing conflicts, diverging preferences or relationship strengths, or interacting with their child (total  $N = 842$  couples; 1,965 interactions). Participants reported how much they felt loved during each interaction and independent coders rated how much each person exhibited destructive behavior. Significant actors'  $\times$  partners' felt-loved interactions revealed a *Strong-Link/Mutual Felt-Unloved* pattern: partners' high felt-loved buffered the damaging effect of actors' low felt-loved on destructive behavior, resulting in actors' destructive behavior mostly occurring when both actors' and partners' felt-loved was low. This dyadic pattern also emerged in three supplemental daily sampling studies. Providing directional support for the *Strong-Link/Mutual Felt-Unloved* pattern, in Studies 4 and 5 involving two or more sequential interactions, actors'  $\times$  partners' felt-loved in one interaction predicted actors' destructive behavior within couples' subsequent conflict interactions. The results illustrate the dyadic nature of feeling loved: partners feeling loved can protect against actors feeling unloved in challenging interactions. Assessing actor  $\times$  partner effects should be equally valuable for advancing understanding of other fundamentally dyadic relationship processes.

Keywords: love, destructive behavior, behavioral observation, dyadic, strong link, buffering

Feeling loved is a fundamental human need (Baumeister & Leary, 1995; Ryan & Deci, 2000). Yet, despite the attention of philosophers, poets, writers, social scientists, and laypeople, there does not exist a consensually agreed upon definition or measurement of feeling loved. We integrated scholarly and lay conceptualizations of love with key relationship theories to identify the core components of feeling loved—feeling loved, cared for, accepted, valued, and understood (e.g., Clark et al., 2019; Fehr, 1988; Lee, 1977; Murray et al., 2006; Reis, 2007; Sprecher and Fehr, 2005; Sternberg, 1986). Such feelings of being loved are essential to set aside the risk of rejection to repair threatening interactions, whereas feeling unloved motivates self-protective, destructive behavior, including expressing hostility, criticism, blame and anger toward partners (Mikulincer & Shaver, 2007; Murray et al., 2006; Reis, 2012; Simpson & Rholes, 2017). Crucially, however, the very nature of feeling (un)loved involves another person, and thus understanding the consequences of feeling (un)loved likely requires a dyadic perspective. For example, does both Alex and Alex’s partner Pat need to feel loved to prevent Alex behaving destructively in challenging interactions? Or, can Pat feeling loved protect against Alex feeling unloved and thereby mitigate Alex’s destructive behavior? The present research addresses these important questions by considering how both *actors’* (e.g., Alex’s) and *partners’* (e.g., Pat’s) feelings of being loved combine to shape actors’ destructive behavior in relationship interactions.

We consider two competing dyadic patterns of feeling (un)loved. First, prominent theoretical models imply that relationships will thrive when actors and partners mutually feel loved (Clark et al., 2019; Murray & Holmes, 2009; Reis & Clark, 2014). The importance of both actors and partners feeling loved may mean that, even when actors feel loved, partners feeling unloved acts as a *weak link* in relationship interactions by promoting actors’ destructive behavior. Second, however, theoretical models emphasizing that partners’ strengths can compensate for actors’ vulnerabilities (e.g., Arriaga et al., 2018; Overall et al.,

2022) indicate that partners feeling loved may act as a *strong link* by mitigating the destructive responses that typically arise from actors feeling unloved. Thus, testing dyadic patterns of feeling loved has the potential to advance understanding of the behavioral consequences of feeling (un)loved as well as differentiate between key theories in relationship science. In the following sections, we integrate a range of theoretical and empirical work to outline our conceptualization of feeling loved and why these two competing dyadic patterns may explain how feeling (un)loved shapes destructive behavior.

### **Central Components of Feeling Loved**

To identify the central components of feeling loved within relationship interactions, we integrated scholarly and lay conceptualizations of love with prominent theories that identify a principal set of feelings as key determinants of relationship behavior. Indeed, despite that feeling loved is at the very heart of close relationships, there is no clear consensually agreed upon definition of love and thus *feeling loved*. Rather, scholarly and lay conceptualizations of love offer varying descriptions of the attitudes, thoughts, feelings, motives, and behaviors that characterize different kinds of loving relationships (e.g., Hatfield and Walster, 1978; Fehr, 1988; Lee, 1977; Rubin, 1970; Sprecher and Fehr, 2005; Sternberg, 1986). Notably, as we outline, across different conceptualizations of love, core components that repeatedly emerge include caring, accepting, valuing, and understanding.

A core component of the first love scale (Rubin, 1970) included caring for the other, and people perceive this caring component to be the most powerful indicator of love (Steck et al., 1982). Early models of types of love also identified caring as central to companionate love (Hatfield and Walster, 1978) and storge love (Hendrick & Hendrick, 1986; Lee, 1977) that characterize close, committed relationships. The intimacy component of Sternberg's (1986, 1997) measurement of love, which focuses on feelings within loving relationships, also emphasized caring ("I am actively supportive of my partner's well-being"), as well as

valuing (“I value my partner greatly in life”) and understanding (“I feel that I really understand my partner”). Sprecher and Fehr (2005) also converged on these components in defining and measuring compassionate love, including feeling “selfless caring”, “accepting partners even when they do ... wrong”, and wanting to support and help as well as “try to understand rather than judge”. Finally, the most central features identified by people when asked to define love involve “caring”, “concern for other’s wellbeing”, “accept other the way s/he is”, “respect”, and “understanding” (Fehr, 1988; Fehr & Russell, 1991).

Consistent with scientific and lay conceptualizations of love, prominent theories that account for *feeling loved* in relationships also emphasize these core components: feeling loved, cared for, accepted, valued, and understood (see Table 1). Attachment theory identifies felt security, operationalized as feeling loved, cared for, supported, and valued (Carnelley & Rowe, 2010; Gillath et al., 2009; Luke et al., 2012; see Table 1), to be the principal feeling that governs close relationship interactions (Mikulincer & Shaver, 2007). Models inspired by interdependence theory (Kelley, 1979) incorporate overlapping constructs. The risk regulation model (Murray et al., 2006) identifies perceptions of partners’ positive regard as the essential feeling that determines responses in relationship interactions, which is defined and measured as feeling loved, accepted, and valued by partners (e.g., Murray et al., 1998, 2002, 2003ab; see Table 1). Reis (2007, 2012) emphasized shared components across these (and other) theories to postulate that feelings of being cared for, valued, and understood are critical in determining responses in relationship interactions by signaling whether partners have been or will be responsive (and thus labelled these feelings “perceived partner responsiveness”). Finally, consistent with our analysis that models, theories and measures of love include feeling cared for, accepted, valued and understood, Clark and colleagues (2019) recently defined love as dyad members striving to care for, accept, and understand each other.

**Table 1. Principal Theories and Example Measures of Core Components of Feeling Loved in Close Relationships**

<b>Theory</b>	<b>Construct and Definition</b>	<b>Typical Measures and Exemplar Items</b>
Attachment Theory	<i>Felt Security</i> Feel loved, cared for, comforted, and safe	<i>Felt Security</i> (Luke et al., 2012) I felt ... “loved”; “cared for”; “comforted”, “supported”; “safe”; “protected”; “valued”;  <i>State Security</i> (Gillath et al., 2009) “I feel loved”; “I feel like others care about me”; “I feel like I have someone to rely on”
Risk Regulation Model	<i>Perceived Regard</i> Feel loved, accepted, and valued by partner	<i>Partner’s Unconditional Regard</i> (Murray et al., 1998, 2002, 2005) “My partner loves and accepts me unconditionally”; “My partner is very tolerant and accepting of my faults”; “I am confident my partner will always want to look beyond my faults and see the best in me”  <i>Felt Acceptance</i> (Murray et al., 2003ab) “My partner loves me”; “My partner accepts me as I am”; “My partner sees the best in me”  <i>Perceptions of Partner’s Regard</i> (Gaucher et al., 2012) “My partner cares for me”; “My partner is accepting of me”; “My partner thinks that I am a valuable person”;  <i>Perceived Regard</i> (Cameron & Overall, 2018; Thomson et al., 2018; Overall & Sibley, 2009ab) “My partner accepted and loved me”; “My partner valued and respected me”; “I did not feel accepted/valued by my partner .... I felt very accepted/valued by my partner”
Perceived Partner Responsiveness Framework	<i>Perceived Partner Responsiveness</i> Perception that partner cares for, values, and understands “central, core defining features of the self”	<i>Perceived Partner Responsiveness Scale</i> (Reis et al., 2017) My partner usually... “is responsive to my needs”; “values and respects the whole package that is the ‘real’ me”; “expresses liking and encouragement for me; “understands me”  <i>Perceived Responsiveness and Insensitivity Scale</i> (Crasta et al., 2021) My partner... “is responsive to my needs”; “takes my concerns seriously”; “is understanding”  <i>Daily Perceived Partner Responsiveness</i> (Gable et al., 2012) “My partner made me feel cared for”; “My partner made me feel like he/she valued my abilities and opinions”; “My partner understood me”

In sum, the central feelings identified by key relationship theories (see Table 1) share core components that align with conceptualizations of love—feeling loved, cared for, accepted, valued, and understood—which provided the foundation for our operationalization of feeling loved versus unloved in relationship interactions (see Table 2). We integrate and apply these theories to consider how feeling (un)loved shapes destructive behavior.

### **Feeling Loved and Destructive Behavior within Relationship Interactions**

The theories in Table 1 all emphasize that feeling loved—assessed as feeling loved, cared for, accepted, valued, understood—determines the way people respond to challenging relationship interactions (see Table 1). Attachment theory emphasizes that feeling unloved and insecure activates a range of destructive behaviors (hostility, anger, blame) designed to protect against expected hurt and rejection, whereas feeling loved allows people to respond to relationship challenges with pro-relationship goals because they trust that their partners will be responsive (Simpson & Rholes, 2017). The risk regulation model also stipulates that people who feel poorly regarded and unloved behave destructively (critical, cold, hurtful) to protect against the risk of rejection, whereas people who feel loved can set aside self-protective concerns to seek closeness and repair threatening interactions (Murray et al., 2002, 2003a). The perceived partner responsiveness framework also highlights that individuals who feel unloved (uncared for, undervalued, misunderstood) will be more guarded and less willing to reveal vulnerabilities than those who feel loved and trust their partners to be responsive (Reis & Clark, 2013; Ruan et al., 2020; Von Culin et al., 2018).

Most of the research inspired by these different theories, particularly the attachment and risk regulation theories, has focused on the behavioral consequences of feeling unloved, providing strong evidence that feeling unloved generates self-protective, destructive behavior during challenging relationship interactions. Many studies have focused on individual differences that are characterized by chronically feeling unloved, including high attachment

anxiety (Rholes et al., 1999; Simpson et al., 1996), high rejection sensitivity (Ayduk et al., 1999; Overall & Sibley, 2009b), chronic perceptions of low partner regard (Murray et al., 2003a), and low self-esteem (Murray et al., 1998, 2002). These studies have shown that chronically feeling unloved is associated with greater destructive behavior, including greater hostility and partner derogation, or treating partners in cold, critical, and hurtful ways.

Critically, attachment and risk regulation theories emphasize that these individual differences prompt destructive behavior because they leave people susceptible to feeling unloved within interactions with partners, and it is these in-the-moment feelings of being unloved that activate self-protective, destructive responses (Murray et al., 2006; Simpson & Rholes, 2017). Thus, independent of chronic feelings or individual differences, feeling more unloved within social interactions is associated with behaving in more hurtful and critical ways toward partners (e.g., Overall & Sibley, 2009ab). Indeed, a range of studies inspired by the theories in Table 1 provide repeated evidence that feeling loved within relationship interactions (as assessed by the shared components in Table 1) is a central determinant of immediate behavioral and relational outcomes during these interactions (e.g., Gable et al., 2006; Laurenceau et al., 1998; Ruan et al., 2020; Sasaki & Overall, 2021; Thomson et al., 2018). Thus, compared to chronic feelings, feelings of being unloved within specific interactions should be the stronger, more proximal indicator of destructive behavior.

### **Dyadic Patterns of Feeling Unloved and Destructive Behavior**

The interdependent nature of close relationships (Kelley & Thibaut, 1978) means that, in addition to individuals or *actors*—such as Alex—feeling unloved, *partners*—such as Pat—feeling unloved also generates risky relationship dynamics that prompt *actors* to behave in destructive ways (Murray et al., 2006). For example, *partners* (Pat) who are feeling unloved tend to behave in ways that lead *actors* (Alex) to perceive partners as selfish, unappreciative, hurtful, and rejecting (Murray et al., 2003a), which may prompt *actors* (Alex) to behave

destructively. The dyadic nature and consequences of feeling unloved also may mean that actors' and partners' feelings of being (un)loved *combine* to shape actors' destructive behavior. For example, if Pat feeling unloved is enough to prompt destructive behavior in Alex, both Alex *and* Pat may need to feel loved to prevent Alex behaving destructively. Or, perhaps Alex *or* Pat feeling loved is enough to reduce destructive behavior. We next consider the theoretical and empirical case for these two potential dyadic patterns of feeling (un)loved.

***Weak-Link/Mutual Felt-Loved Dyadic Model (Figure 1, Panel A)***

First, a *weak-link* pattern may occur such that one dyad member feeling unloved may be enough to produce greater destructive behavior even when the other dyad member is feeling loved. Although no prior studies have examined whether feeling unloved acts as a weak link, applications of interdependence theory have generated evidence for weak-link patterns in other constructs that may be relevant to the risks associated with feeling unloved (Kelley & Thibaut, 1978; Waller & Hill, 1951). For example, it only takes one person's lack of commitment (Attridge et al., 1995; Oriña et al., 2011), low gratitude (McNulty & Dugas, 2019), or suppression of emotional expressions (Sasaki et al., 2021) to undermine relationship satisfaction and stability likely because both actors and partners need to be committed, grateful, and express their emotions to be responsive and constructive to sustain relationships. Similarly, it may be difficult to maintain constructive interactions as long as one person feels unloved. Even if Alex feels loved, Pat feeling unloved may undermine Alex's well-intentioned efforts to connect (e.g., Lemay & Clark, 2008b; Murray et al., 2003a), which may lead to Alex behaving destructively (Kohn et al., 2012; Murray et al., 2003a). Thus, even if actors feel loved, partners feeling unloved and associated destructive responses may be enough to activate self-protective, destructive behavior in actors.

The implication of partners feeling unloved acting as a weak link is that both actors *and* partners need to feel loved to limit destructive behavior within relationship interactions.

If Pat feeling unloved prompts Alex to behave destructively even when Alex feels loved, then both Alex and Pat need to feel loved to prevent destructive behavior. Such a *mutual felt-loved* pattern is consistent with key theoretical models that emphasize the benefits of mutual love for healthy relationship functioning. The Mutual Communal Responsiveness Model proposes that couples who mutually feel and enact love toward each other create a trusting relationship climate involving actors and partners feeling safe depending on each other (Clark et al., 2019; Reis & Clark, 2014; Wieselquist et al., 1999), likely eliminating the need for self-protection and thus destructive behavior even within challenging interactions. The Motivation-Management Theory of Mutual Responsiveness (Murray & Holmes, 2009) also proposes that successful relationships involve both actors and partners similarly feeling loved, which is necessary for both to be equally willing to set aside self-protective concerns and destructive impulses in order to seek connection (also see Cavallo et al., 2013).

These theoretical frameworks imply that mutual feelings of being loved will provide the most beneficial outcomes, such as low levels of destructive behavior, but do not consider whether the benefits of mutual felt-loved could result in any one partner feeling unloved creating more negative outcomes for the other (i.e., act as a weak-link). Moreover, research generated from these frameworks has not directly tested how both actors' and partners' feelings of being loved combine, and has not considered or tested whether the combination of actors and partners feeling loved within interactions produce better outcomes. Other approaches offer some supporting evidence. Consistent with the mutual felt-loved pattern, Otero et al. (2020) found that couples whose interactions were coded higher in positivity resonance, involving mutual care and concern, shared positive affect, and behavioral synchrony, reported greater marital satisfaction. Assessing couple-level positivity resonance, however, does not examine the independent contribution of actors' and partners' feelings of being (un)loved and so cannot test whether one dyad member feeling unloved could be a

weak link and undermine relationships, such as by increasing the risk of destructive behavior, even when the other person feels loved.

In the present research, we directly test the dyadic nature and consequences of feeling (un)loved by modeling actors' destructive behavior as a function of the interaction between actors' and partners' felt-loved during relationship interactions. Figure 1 (Panel A) depicts the *Weak-Link/Mutual Felt-Loved* pattern. As shown on the left side of Panel A, actors low in felt-loved will show similarly high levels of destructive behavior regardless of whether partners' felt-loved is relatively low (solid line) or high (dashed line). Critically, as shown on the right side of Panel A, actors high in felt-loved also will exhibit greater destructive behavior when partners' felt-loved is low and acts as a weak link (solid line). Accordingly, actors' destructive behavior is lowest when both actors' and partners' felt-loved are high (see dashed line in bottom right side of Panel A).

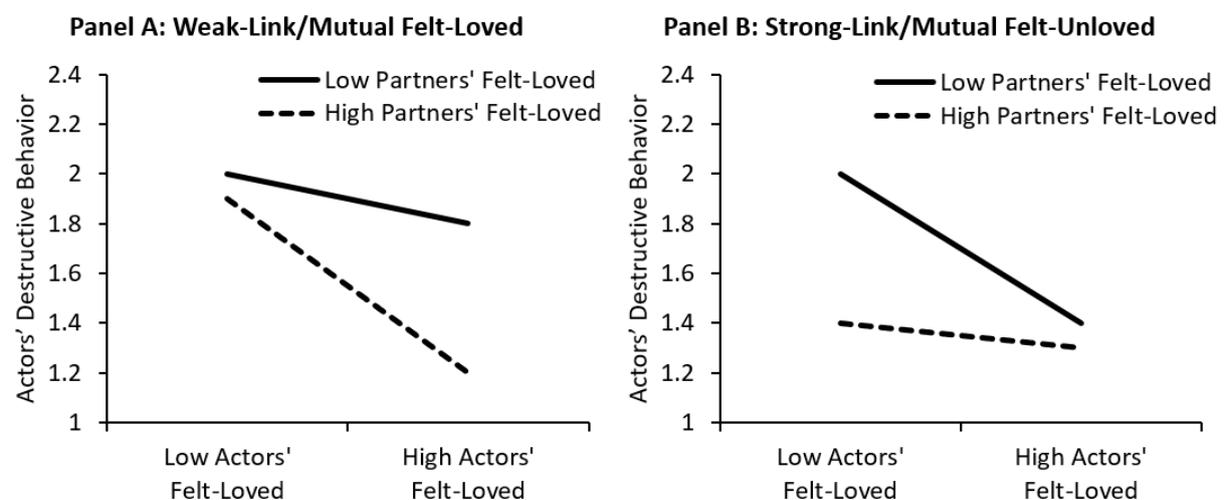


Figure 1. Hypothesized Dyadic Patterns: *Weak-Link/Mutual Felt-Loved* (Panel A) and *Strong-Link/Mutual Felt-Unloved* (Panel B).

*Note.* Both possible dyadic patterns would yield significant actor  $\times$  partner felt-loved interactions, but the patterns differ in the combination of simple effects. For a *Weak-Link/Mutual Felt-Loved* pattern (Panel A), actors' higher felt-loved will predict lower destructive behavior when partners' felt-loved also is high (dashed line), but not (or less so) when partners' felt-loved is low and acts as a weak link (solid line). For a *Strong-Link/Mutual Felt-Unloved* pattern (Panel B), actors' lower felt-loved will predict greater destructive behavior when partners' felt-loved also is low (solid line), but not (or less so) when partners' felt-loved is high and acts as a strong link (dashed line).

***Strong-Link/Mutual Felt-Unloved Dyadic Model (Figure 1, Panel B)***

Separate lines of research suggest that an alternative *strong-link* dyadic pattern could emerge, such that one dyad member can compensate for the other person feeling unloved and mitigate destructive processes (Arriaga et al., 2018; Overall et al., 2022). Even if Alex feels unloved, Pat feeling loved may generate a safe and cooperative relationship climate that abates Alex's self-protective concerns. Thus, rather than Pat feeling unloved being a weak link to promote Alex's destructive behavior even when Alex feels loved, Pat feeling loved may be a strong link by alleviating Alex's destructive behavior when Alex feels unloved.

One reason a strong-link pattern may occur is because feeling loved could allow Pat to be responsive to the needs, concerns, vulnerabilities, and even destructive behavior arising from Alex feeling unloved. For example, partners such as Pat who feel more loved are more likely to enact loving behavior (Canevello & Crocker, 2010; Reis et al., 2004). Moreover, partners' more loving behavior, such as expressions of affection and inhibition of negative behavior (Lemay & Dudley, 2011), physical touch (Jakubiak & Feeney, 2016; Kim et al., 2018), comfort and reassurance (Arriaga et al., 2020), or accommodation (Tran & Simpson, 2009), can help insecure actors who tend to feel unloved overcome destructive responses during relationship interactions. Similarly, partner accommodation when actors behave destructively can prevent reciprocal hostility, criticism, and anger from escalating across challenging interactions (e.g., Notarius et al., 1989; Rusbult et al., 1991). These prior studies, however, have tended to focus on individual difference vulnerabilities rather than felt-loved within relationship interactions, and have not considered or tested whether partner buffering effects emerge from partners' *feelings* of being loved. In the present research, we test whether partners' *feelings* of being loved can buffer the harmful effects of actors *feeling* unloved on destructive behavior, and we consider whether one reason such a strong-link pattern may arise is because partners who maintain high felt-loved enact greater loving behavior.

The implication of a strong link pattern is that destructive behavior will be most likely to occur when *both* actors *and* partners feel unloved. Alex feeling unloved might typically result in Alex behaving destructively, but if Pat feeling loved creates dynamics that buffers Alex's destructive behavior, then Alex feeling unloved will only create destructive behavior when Pat also feels unloved. Figure 1, Panel B, depicts this *Strong-Link/Mutual Felt-Unloved* pattern. As shown in the left side of Panel B, actors who feel less loved will behave more destructively when partners' felt-loved also is low (solid line), but not (or less so) when partners' felt-loved is high and acts as a strong link (dashed line). Thus, actors' destructive behavior is highest when both actors' and partners' felt-loved are low (top left of Panel B).

### **Present Research: Testing Dyadic Patterns of Feeling Unloved**

We present five studies testing the two dyadic patterns shown in Figure 1. Table 2 describes the aims and measures of each study. We focused on processes occurring within couples' interactions because it is within interactions—particularly those that risk hurt and rejection—where feeling unloved and destructive behavior are likely to emerge, and in turn have harmful consequences for relationships (Kanter et al., 2022). The measures of feeling loved (loved, cared for, accepted, valued, and understood) include core components shared across felt security, perceived regard, and perceived partner responsiveness (see Table 1). We assessed in-the-moment feelings of being (un)loved as these feelings are the most proximal indicator of whether individuals behave in self-protective, destructive ways within relationship interactions. We focused on destructive behavior because the theory and accompanying research described above provide strong evidence that feeling unloved generates destructive responses especially during challenging interactions.<sup>1</sup>

---

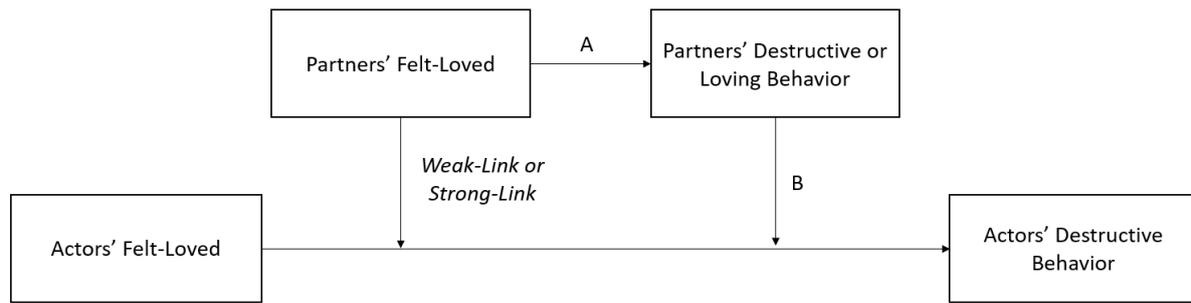
<sup>1</sup> Our rationale for focusing on destructive behavior as the outcome is guided by attachment and risk regulation theories along with extensive research emphasizing that feeling unloved generates self-protective, destructive responses. Guided by reviewer queries, we present tests of actors'  $\times$  partners' felt-loved on actors' loving behavior in the Online Supplemental Materials (OSM). The dyadic patterns shown for actors' destructive behavior were not evident for actors' loving behavior. We consider the distinctions between destructive and loving behavior in the General Discussion.

**Table 2. Aims and Measurement of Feeling Loved and Destructive and Loving Behaviors across Studies**

<b>Study</b>	<b>Aim</b>	<b>Measure of Feeling Loved</b>	<b>Measure of Destructive Behavior</b>	<b>Measure of Loving Behavior</b>
Study 1	Test of dyadic pattern within couples' conflict discussions	Post-discussion ratings of felt cared for/loved, accepted/valued, and understood/validated	Observer-rated hurtful, critical or unpleasant behavior	Observer ratings of being warm/affectionate, compassionate, and empathetic toward partner
Study 2	Replication test of dyadic pattern within couples' discussions involving diverging preferences	Post-discussion ratings of whether their partner cared for, appreciated, and understood them	Observer-rated verbal and nonverbal hostility, withdrawal, and dysphoric affect	Observer-rated verbal and nonverbal openness and humor/positive affect
Study 3	Replication test of dyadic pattern within couples' conflict discussions and family interactions involving couples and their child	Post-discussion ratings of felt cared for/loved, accepted/valued, and understood/validated	<i>Couples' Conflict Discussions</i> Observer-rated criticism, anger, and hostility  <i>Family Activity</i> Observer-rated criticism, blame, and hostility	<i>Couples' Conflict Discussions</i> Observer-rated caring, understanding, and validation  <i>Family Activity</i> Observer-rated affection, warmth, and positive regard
Study 4	Replication test of dyadic pattern within two sequential couples' conflict discussions	Post-discussion ratings of felt cared for, accepted, valued, and understood	Observer-rated criticism, anger, and hostility	Observer-rated attempts to soften conflict, expressions of affection and positive affect, and inhibition of negative reactions
Study 5	Replication test of dyadic pattern within four sequential interactions, including couples' conflict and relationship strength discussions and family interactions involving couples and their child	Post-discussion ratings of felt cared for/loved and understood/validated	<i>Couples' Discussions</i> Observer-rated criticism, anger, and hostility  <i>Family Activity</i> Observer-rated criticism, blame, and hostility	<i>Couples' Discussions</i> Observer-rated attempts to soften conflict, expressions of affection and positive affect, and inhibition of negative reactions  <i>Family Activity</i> Observer-rated affection, warmth, and positive regard

Across studies, our primary analyses tested whether actors' and partners' felt-loved combined to predict destructive behavior by modelling the main and interaction effects of actors' and partners' felt-loved on actors' destructive behavior (see Figure 1), and examining whether the expected significant actor  $\times$  partner felt-loved interaction was characterized by two possible dyadic patterns. A *Weak-Link/Mutual Felt-Loved* dyadic pattern may emerge: partners' low felt-loved may signal a heightened risk of hurt and rejection and promote actors' destructive behavior even when actors' felt-loved is high (*weak link*), resulting in both actors and partners needing to experience high felt-loved to circumvent actors' destructive behavior (*mutual felt-loved*; see Figure 1, Panel A). Alternatively, a *Strong-Link/Mutual Felt-Unloved* pattern may emerge: partners' high felt-loved may provide a safe and secure relationship climate that attenuates the link between actors' lower felt-loved and destructive behavior (*strong link*), resulting in actors' destructive behavior mostly occurring when both actors' and partners' felt-loved is low (*mutual felt-unloved*; see Figure 1, Panel B).

We conducted secondary analyses to examine whether partners' behavior explained why partners feeling (un)loved moderated the links between actors' felt-loved and destructive behavior (i.e., mediated moderation). As shown in Figure 2, founded on the theory and research reviewed above, partners feeling unloved or loved may act as a weak link or a strong link via partners enacting greater destructive or loving behavior. For a *Weak-Link/Mutual Felt-Loved* pattern, partners' low felt-loved may mean partners behave more destructively, which acts as a weak link by disrupting the sense of safety associated with actors' high felt-loved and reducing the positive effect of actors' higher felt-loved on lower destructive behavior. For a *Strong-Link/Mutual Felt-Unloved* pattern, partners' high felt-loved may mean partners enact greater loving behavior, which acts as a strong-link by buffering the negative effect of actors' lower felt-loved on greater destructive behavior.



*Figure 2. Mediated Moderation Model depicting Partners' Destructive or Loving Behavior as a Mechanism through which Partners' Felt-Loved Moderated the Links between Actors' Felt-Loved and Destructive Behavior.*

*Note.* For a *weak-link* pattern, partners low in felt-loved may enact greater destructive behavior that reduces the positive effect of actors' higher felt-loved on lower destructive behavior. For a *strong-link* pattern, partners high in felt-loved may enact greater loving behavior that buffers the negative effect of actors' lower felt-loved on greater destructive behavior.

We also conducted two sets of additional analyses. First, across all studies, we ran analyses to illustrate, as expected, that the effects of actors' and partners' felt-loved within couples' interactions were independent of individual difference vulnerabilities in feeling unloved as indexed by high attachment anxiety or low self-esteem (Fraley & Shaver, 2000; Mikulincer & Shaver, 2007; Murray et al., 2000, 2003b)<sup>2</sup>. Second, although our primary aim and analyses focused on the dyadic patterns of feeling loved on actors' destructive behavior within relationship interactions, the correlational nature of these data prevents conclusions about the direction of effects. To provide additional evidence of the direction of effects, in three studies that involved two or more sequential interactions (Studies 3-5), we ran additional analyses testing whether the effects of actors'  $\times$  partners' felt-loved in one interaction carried over to predict actors' destructive behavior in the subsequent interaction.

<sup>2</sup> We focused on high attachment anxiety and low self-esteem as capturing individual difference vulnerabilities in feeling unloved because they are most relevant to the sensitivity of feeling unloved within risky interactions (Fraley & Shaver, 2000; Mikulincer & Shaver, 2007; Murray et al., 2000, 2003b). In particular, attachment anxiety reflects the persistent monitoring and experiences of feeling unloved and insecure, whereas attachment avoidance reflects a motivational orientation toward down-regulating feelings of love and being loved by limiting emotional closeness (Fraley & Shaver, 2000). Nevertheless, responding to reviewers' queries, we also ran additional analyses for attachment avoidance, which revealed that the dyadic effects of felt-loved were independent of attachment avoidance (see OSM). Similarly, additional analyses illustrated that the dyadic effects of felt-loved were independent of actors' and partners' relationship satisfaction (see OSM).

We present the studies in the order in which we analyzed the data. The studies and analyses were not pre-registered. The introduction to each study provides details of the foundation and timing of each set of analyses, including specific applications to replicate analyses after establishing prior effects. The materials, data, and syntax to replicate analyses for all studies are available on the Open Science Framework ([OSF](#)).

## Study 1

Study 1 was conducted after two preliminary daily sampling studies that are presented in the OSM. Supplemental Studies 1 and 2 involved both couple members rating how much they felt loved by their partner and their level of destructive behavior each day for 21 days. In both studies, daily variations in actors'  $\times$  partners' feelings of being loved significantly predicted actors' destructive behavior during couples' daily interactions, revealing a *Strong-Link/Mutual Felt-Unloved* pattern as depicted in Figure 1, Panel B (see OSM for more details).<sup>3</sup> After finding initial evidence of a *Strong-Link/Mutual Felt-Unloved* pattern during daily life, Study 1 tested whether the dyadic pattern emerged during a lab-based conflict discussion. Couples were video recorded discussing an area of relationship conflict, and then reported how much they felt loved during the conflict discussion. Coders rated how much each person exhibited destructive and loving behavior toward their partner (see Table 2).

## Method

### *Participants*

Study 1 involved 143 (138 mixed-gender, 5 same-gender) couples recruited via advertisements posted across a large city-based university in New Zealand (e.g., health and

---

<sup>3</sup> We presented the daily sampling studies in the OSM because they assess feelings and responses occurring across a range of separate interactions each day and thus provide a less optimal test of the critical processes associated with feeling loved within specific relationship interactions. Moreover, daily records rely on self-reports of destructive behavior that could reduce the precision in testing dyadic patterns due to reporting biases and/or method variance. For these reasons, the primary studies we present examine the dyadic effects of felt-loved during couples' discussion in the laboratory and gathering observer ratings of destructive behavior. Nonetheless, the daily sampling studies replicated the dyadic pattern of felt-loved in our primary studies.

recreation centers). Couples were involved in serious (52.5% married/ cohabitating) relationships for an average of 3.60 years ( $SD = 5.03$ , range = 1–52). Average age was 24.83 years ( $SD = 7.52$ , range = 18–78). Couples were reimbursed NZ\$100. This study received ethics approval. See OSM for more details about how sample size was determined. Post hoc power analyses using Monte Carlo simulations with 10,000 repetitions modeling the effects of each dyad member with equality constraints based on the parameter estimates from our primary analyses (Bolger & Laurenceau, 2013) revealed good statistical power (.89 to .99) to detect the actor, partner, and actor  $\times$  partner effects.

### ***Materials and Procedure***

During a laboratory session, participants completed questionnaires and identified and ranked in importance the three most serious relationship conflicts. Following a warm-up discussion, couples had a 7-minute discussion about the most serious and ongoing issue identified by one of the couple members (randomly assigned prior to the session). Couples were instructed to talk about the issue as they normally would. Immediately following the discussion, each dyad member independently completed assessments of how much they felt loved during the conflict discussion. Independent coders rated the degree to which each dyad member exhibited destructive and loving behavior during the conflict discussion.

#### **Questionnaire Measures.**

***Attachment Anxiety and Self-Esteem.*** The Adult Attachment Questionnaire (Simpson et al., 1996) assessed attachment anxiety ( $M = 3.05$ ,  $SD = 1.09$ ,  $\alpha = .81$ ) and the Rosenberg (1965) Self-Esteem Scale assessed self-esteem ( $M = 5.17$ ,  $SD = 1.09$ ,  $\alpha = .88$ ).

#### **Conflict Discussion Measures.**

***Felt-Loved.*** Immediately following the conflict discussion, participants rated three items to assess how much they felt loved by their partner during the conflict discussion (“I felt cared for/loved by my partner”; “I felt accepted/valued by my partner”; “I felt

understood/validated by my partner”; 1 = *not at all*, 7 = *very much*). The items were averaged to construct an overall measure of felt-loved ( $\alpha = .94$ ; see Table 3).

***Destructive Behavior.*** Three trained coders who were unaware of the aims of the present research independently rated two items used in Supplemental Studies 1 and 2: “this person acted in a way that was hurtful to their partner” and “this person was critical or unpleasant to their partner” (1 = *not at all*, 7 = *very much*). Each couple member was coded in separate viewings (order across gender was counterbalanced). Coders’ ratings were reliable (consistency-type intraclass correlation coefficients [ICCs] = .88-.95), and averaged ( $\alpha = .96$ ) to create destructive behavior scores (see Table 3).

***Loving Behavior.*** The same team of trained coders also rated three items to assess how much each person exhibited loving behavior during the conflict discussion: “this person was warm/affectionate towards their partner”; “this person was compassionate towards their partner”; and “this person was empathetic towards their partner (1 = *not at all*, 7 = *very much*). Being warm, affectionate, compassionate, and empathetic convey love, caring, and understanding and are good indices of loving behavior. Coders’ ratings were reliable (ICCs = .73-90) and averaged ( $\alpha = .92$ ) to create loving behavior scores (see Table 3).

## Results

Actors’ and partners’ felt-loved was correlated at .55.<sup>4</sup> The size of this correlation, and inspection of the scatterplot (see OSM), indicate a fair representation of couples experiencing similar or different relative levels of felt-loved during the conflict discussion.

---

<sup>4</sup> Across studies, we assumed couples were distinguishable because nearly all were mixed-gender couples. Tests of distinguishability confirmed that means and/or variances differed significantly by gender across studies. The correlation we report represent the zero-order correlation between distinguishable partners and thus the actor and partner variables entered into the model assess actor and partner effects. Given dyads were distinguishable, we also controlled for the main effect of gender (-1 = women, 1 = men; see Kenny et al., 2006) across analyses. We ran additional analyses examining whether the effects differed across gender. In Studies 1-5, there were no gender differences in the effects of actors’ × partners’ felt-loved.

**Table 3. Descriptive Statistics of all Measures**

Measures	Interaction 1			Interaction 2			Interaction 3			Interaction 4		
	Mean	(SD)	Range	Mean	(SD)	Range	Mean	(SD)	Range	Mean	(SD)	Range
<b>Study 1</b>	<i>Conflict Discussion</i>											
Felt-Loved	6.00	(1.27)	1.00 - 7.00									
Observed Destructive Behavior	1.36	(0.77)	1.00 - 7.00									
Observed Loving Behavior	2.31	(0.77)	1.00 - 5.33									
<b>Study 2</b>	<i>Discussion of Diverging Preferences</i>											
Felt-Loved	5.65	(1.05)	2.00 - 7.00									
Observed Destructive Behavior	1.69	(0.44)	0.88 - 3.10									
Observed Positive Behavior	2.40	(0.33)	1.42 - 3.21									
<b>Study 3</b>	<i>Conflict Discussion</i>						<i>Family Activity</i>					
Felt-Loved	6.03	(1.15)	1.33 - 7.00	5.81	(1.16)	1.00 - 7.00						
Observed Destructive Behavior	1.62	(0.76)	1.00 - 6.11	1.49	(1.12)	1.00 - 7.00						
Observed Loving Behavior	1.78	(0.54)	1.00 - 4.32	2.26	(1.23)	1.00 - 6.67						
<b>Study 4</b>	<i>Conflict Discussion</i>						<i>Conflict Discussion</i>					
Felt-Loved	5.16	(1.35)	1.02 - 7.00	5.20	(1.44)	1.00 - 7.00						
Observed Destructive Behavior	1.86	(0.96)	1.00 - 5.86	1.84	(0.93)	1.00 - 4.95						
Observed Loving Behavior	2.47	(0.79)	1.00 - 4.36	2.51	(0.83)	1.00 - 4.86						
<b>Study 5</b>	<i>Conflict Discussion</i>			<i>Relationship Strengths Discussion</i>			<i>Conflict Discussion</i>			<i>Family Activity</i>		
Felt-Loved	5.44	(1.47)	1.00 - 7.00	6.10	(1.21)	1.00 - 7.00	5.47	(1.45)	1.00 - 7.00	5.39	(1.36)	1.00 - 7.00
Observed Destructive Behavior	1.62	(1.01)	1.00 - 7.00	1.27	(0.60)	1.00 - 6.65	1.59	(0.99)	1.00 - 6.50	1.47	(0.99)	1.00 - 7.00
Observed Loving Behavior	2.14	(0.72)	1.00 - 4.89	2.60	(0.85)	1.00 - 6.20	2.06	(0.69)	1.00 - 4.79	2.17	(1.12)	1.00 - 7.00

*Note.* All measures represent averages of items on 1-7 likert-type scales, except for observed destructive and positive behavior in Study 2 that represent average ratings on 0-6 likert-type scale. In general, the observed range matched the possible range across studies. In Studies 1 (conflict discussion), 3 and 5 (family activity), observed destructive and loving behavior represents averages of independent coders' ratings across the interaction. In Studies 2-5 (couples' discussions of diverging preferences, conflict, and relationship strengths), observed destructive and loving behavior represents averages of independent coders' ratings for each 30-second segment of the discussion, and these 10-14 segment scores averaged across the discussion.

**Primary Analyses: Dyadic Effects of Feeling Loved on Destructive Behavior**

We applied the dyadic multilevel modeling procedures outlined by Kenny et al. (2006) to model the degree to which actors' felt-loved, partners' felt-loved, and actors' × partners' felt-loved predicted actors' destructive behavior during couples' conflict discussions (see OSF for data and syntax). As shown in Table 4, a significant actors' × partners' felt-loved interaction emerged (shown in bold).

**Table 4. The Effects of Actors' and Partners' Felt-Loved on Actors' Destructive Behavior within Couples' Conflict Discussion (Study 1)**

Predictors	Actors' Destructive Behavior					
	<i>B</i>	<i>t</i>	95% CI		<i>p</i>	<i>r</i>
			Low	High		
Intercept	1.30	31.97	1.224	1.385	<.001	.94
Actors' Felt-Loved	-.10	-2.39	-.177	-.017	.018	.15
Partners' Felt-Loved	-.13	-3.27	-.208	-.052	.001	.22
Actors' × Partners' Felt-Loved	<b>.06</b>	<b>3.27</b>	<b>.023</b>	<b>.094</b>	<b>.001</b>	<b>.27</b>

*Note.* The significant actors' × partners' felt-loved interaction shown in bold is presented in Figure 3. CI = confidence interval.<sup>5</sup>

Decomposing the interaction revealed a *Strong-Link/Mutual Felt-Unloved* pattern consistent with that depicted in Figure 1, Panel B. As shown in Figure 3, actors' lower felt-loved predicted greater destructive behavior when partners also experienced lower felt-loved (solid line;  $b = -.17$ ,  $t = -4.45$ ,  $p < .001$ ,  $r = .35$ ), but not when partners reported higher felt-loved (dashed line;  $b = -.02$ ,  $t = -.42$ ,  $p = .675$ ,  $r = .04$ ). Accordingly, actors whose felt-loved was low exhibited greater destructive behavior when partners' felt-loved was low compared to when partners' felt-loved was high (left side of figure;  $b = -.20$ ,  $t = -5.31$ ,  $p < .001$ ,  $r = .41$ ). Actors whose felt-loved was high exhibited similarly low levels of destructive behavior across levels of partners' felt-loved (right side of figure;  $b = -.06$ ,  $t = -1.06$ ,  $p = .293$ ,  $r = .09$ ).

<sup>5</sup> Across all analyses (Tables 4-11), effect sizes ( $r$ ) were computed using Rosenthal and Rosnow's (2007) formula:  $r = \sqrt{(t^2 / t^2 + df)}$ . The Satterthwaite approximation is applied to provide degrees of freedom for each effect, which were used to calculate the effect sizes.

This pattern supports that partners' high felt-loved may buffer the effect of actors feeling unloved on destructive behavior (*strong link*), such that higher actors' destructive behavior is most likely to occur when both actors *and* partners feel unloved (*mutual felt-unloved*; see Figure 1, Panel B).

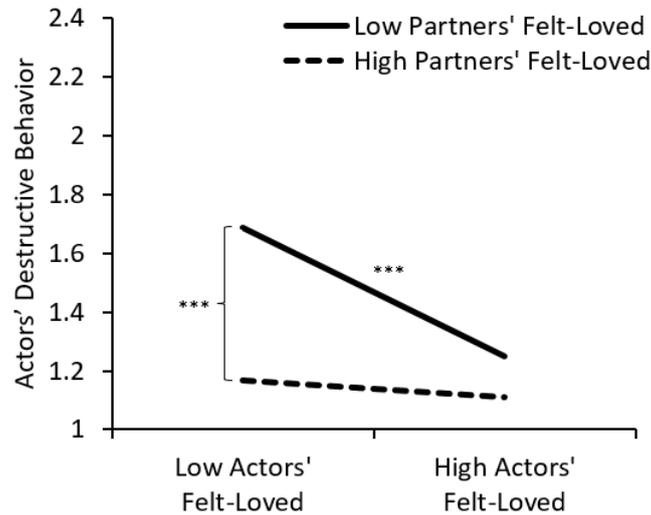


Figure 3. The effects of Actors' and Partners' Felt-Loved on Actors' Destructive Behavior within Couples' Conflict Discussion (Study 1).

Note. Low and high levels of Actors' and Partners' Felt-Loved represent 1 *SD* below and above the mean. The simple effects of the slopes and contrasts are marked \*\*\*  $p < .001$ .

### Secondary Analyses: Role of Partners' Behavior

One reason a *Strong-Link/Mutual Felt-Unloved* pattern may emerge is because partners feeling loved may enact greater *loving* behavior, which in turn buffers the negative effect of actors feeling unloved on greater destructive behavior. The first step to evaluate this mediated moderation pattern (see Figure 2; Muller et al., 2005) involves examining whether partners' felt-loved predicted partners' loving behavior (Path A of Figure 2) and whether actors' felt-loved  $\times$  partners' loving behavior showed a similar strong-link effect as actors'  $\times$  partners' felt-loved on actors' destructive behavior (Path B of Figure 2). If these two conditions are met, then tests of mediated-moderation involve simultaneously modelling the actors'  $\times$  partners' felt-loved interaction and actors' felt-loved  $\times$  partners' loving behavior

interaction. Mediated moderation would be supported if the actors'  $\times$  partners' felt-loved interaction was reduced, and significant indirect effects supported the mediating pathway. Although partners' felt-loved predicted greater partners' loving behavior ( $b = .15, t = 4.15, p < .001, r = .26$ ), actors' felt-loved  $\times$  partners' loving behavior did not significantly interact to predict actors' destructive behavior ( $b = .06, t = 1.46, p = .146, r = .10$ ). These analyses indicated that partners' loving behavior could not have explained the strong-link effect of partners' high felt-loved in Figure 3. Nonetheless, we ran analyses modeling all effects needed to specify actors'  $\times$  partners' felt-loved and actors' felt-loved  $\times$  partners' loving behavior interactions simultaneously. The significant actors'  $\times$  partners' felt-loved interaction was not reduced ( $b = .07, t = 3.42, p = .001, r = .27$ ).<sup>6</sup>

### *Additional Analyses*

**Chronic Feelings of Being Unloved.** We conducted additional analyses to illustrate that the effect of actors'  $\times$  partners' felt-loved within couples' interactions was independent of individual differences that capture chronic vulnerabilities in feeling unloved. As detailed in the OSM, actors'  $\times$  partners' attachment anxiety did not significantly interact to predict actors' destructive behavior. A significant interaction of actors'  $\times$  partners' self-esteem emerged, but this pattern did not align with a strong-link or weak-link pattern: actors' higher self-esteem was associated with lower destructive behavior when partners' self-esteem was low but not high. Nonetheless, simultaneously modelling actors'  $\times$  partners' felt-loved revealed that the actors'  $\times$  partners' felt-loved interaction shown in Figure 3 remained significant (see OSM), indicating that the dyadic effects of felt-loved within couples'

---

<sup>6</sup> Although partners' destructive behavior was a more likely explanation for a weak-link than strong-link pattern (see Figure 2), for completeness, we also examined whether partners' lower destructive behavior played a role in the strong-link effect of partners' high felt-loved. Partners' higher felt-loved predicted lower partners' destructive behavior ( $b = -.25, t = -7.93, p < .001, r = .49$ ), but actors' felt-loved  $\times$  partners' destructive behavior did not significantly interact to predict actors' destructive behavior ( $b = .03, t = 1.08, p = .281, r = .07$ ). Thus, partners' lower destructive behavior did not explain the strong-link effect of partners' high felt-loved. Accordingly, rerunning the primary analyses when also modelling the effects of actors' felt-loved  $\times$  partners' loving behavior did not reduce the significant actors'  $\times$  partners' felt-loved interaction shown in Figure 3 ( $b = .10, t = 4.64, p < .001, r = .27$ ).

interactions were independent of individual difference vulnerabilities in feeling unloved.

## Study 2

Study 1 provided evidence that the *Strong-Link/Mutual Felt-Unloved* pattern of actors' × partners' felt-loved on destructive behavior emerged during couples' conflict discussions. Seeking to replicate this pattern, the first author applied for funding to test the strong-link dyadic pattern in two existing samples available on The Love Consortium database ([www.theloveconsortium.org](http://www.theloveconsortium.org)). First, we tested whether the obtained dyadic pattern replicated within daily life as found in Supplemental Studies 1 and 2 (also see Footnote 3). In Supplement Study 3, newlywed couples in US and Canada reported how much they felt loved and whether or not they enacted destructive behavior each day for 14 days. Daily variations in actors' × partners' felt-loved significantly predicted actors' daily destructive behavior, replicating the *Strong-Link/Mutual Felt-Unloved* pattern (see OSM for more details). Second, we tested whether the same dyadic pattern replicated within conflict-of-interest discussions as found in Study 1. In Study 2, couples in The Netherlands were video recorded discussing an area in the relationship involving diverging preferences, and then reported how much they felt loved during the discussion. Independent coders rated how much each person exhibited verbal and nonverbal destructive and positive behavior (see Table 2).

## Method

### *Participants*

Study 2 involved 130 couples (129 mixed-gender, 1 same-gender) recruited by personal contact or through various websites and social networks. To be eligible for the study, couples were required to speak fluent Dutch, not have any children, and be involved in relationships of at least 4 months in length. Five couples and one participant were excluded from analyses because they did not follow the instructions for the video-recorded discussion. The remaining 124 couples (35.5% cohabitating and 2.4% married) had an average

relationship length of 2.84 years ( $SD = 2.44$ , range = 4–17) and average age of 23.37 years ( $SD = 3.67$ , range = 18–43). This study received ethics approval. Couples were reimbursed €80 in addition to entering a raffle for a bonus of €200. See OSM for how sample size was determined and prior use of this sample. We could not conduct post hoc power analyses using Monte Carlo Simulations due to convergence issues. However, given that Study 1, which also involved couples' lab-based interactions, yielded ample statistical power based on 143 couples, and Study 2 involved 124 couples with two types of behavioral ratings (verbal and nonverbal) for each person, it is likely that we had adequate statistical power if the effects replicated with the measures contained in this study.

### ***Materials and Procedure***

During a laboratory session, couples completed questionnaires and then had a 7-minute discussion about an area in the relationship involving diverging preferences (e.g., one person likes to visit his or her family on the weekends but their partner prefers to spend time with shared friends). Couples were instructed to talk about the issue as they normally would. Immediately following the discussion, each dyad member completed assessments of how much they felt loved during the discussion. Independent coders rated how much each person exhibited verbal and nonverbal destructive and positive behavior during the discussion.

#### **Questionnaire Measures.**

***Attachment Anxiety and Self-Esteem.*** The scales used in Study 1 assessed attachment anxiety ( $M = 2.52$ ,  $SD = 0.92$ ,  $\alpha = .61$ ) and self-esteem ( $M = 5.45$ ,  $SD = 0.97$ ,  $\alpha = .89$ ).

#### **Conflict Discussion Measures.**

***Felt-Loved.*** Immediately following the discussion, participants rated three items similar to those in Study 1 and the Supplemental Studies (see Table 2): my partner "... cared for me"; "... appreciated who I really am"; "... understood me"; 1 = *strongly disagree*, 7 = *strongly agree*). The items were averaged ( $\alpha = .80$ ; see Table 3).

***Destructive Behavior.*** Trained coders independently rated how much each participant exhibited (a) verbal and (b) nonverbal destructive behavior during the discussion. The coding of destructive behaviors comprised three components: hostility, withdrawal, and dysphoric affect (Faure et al., 2018; see OSM for more details), which was broader than the measures of destructive behavior in the prior studies that focused on the hostility component. Coders were given detailed descriptions of the three components of destructive behavior. The present study was originally designed for the purpose of distinguishing verbal and nonverbal behaviors. For verbal coding, three Dutch coders read transcriptions of the verbal content of the conversations and rated the levels of each person's verbal destructive behavior within each 30-second segment of the discussion (0 = *none/neutral*, 6 = *very high*). For nonverbal coding, three non-Dutch raters who did not understand the Dutch language viewed the videotaped discussions and rated the levels of each person's nonverbal destructive behavior within each 30-second segment of the discussion (0 = *none/neutral*, 6 = *very high*). Each dyad member was coded in separate reading/viewings (order counterbalanced). Coders' verbal (ICCs = .71-.80) and nonverbal (ICCs = .37-.50) ratings of destructive behavior were averaged for each 30-second segment, and then averaged across the discussion ( $\alpha = .90$  for verbal and  $\alpha = .92$  for nonverbal destructive behavior; see Table 3).

***Positive Behavior.*** Study 2 did not have a clear measure of loving behavior exhibited during couples' discussion that matched the operationalization of loving behavior across studies (see Table 2). However, trained coders did rate how much each person exhibited verbal and nonverbal positive behavior during the discussion. Positive behaviors include two subcategories: openness and humor/positive affect (Faure et al., 2018; see OSM for more details). The coding procedures were the same as that for destructive behavior. Coders' verbal (ICCs = .52-.66) and nonverbal (ICC = .74-.78) ratings of positive behavior were

averaged for each 30-second segment, and then averaged across the discussion ( $\alpha = .83$  for verbal and  $\alpha = .90$  for nonverbal positive behavior; see Table 3).

## Results

The correlation between actors' and partners' felt-loved was similar to Study 1 ( $r = .52$ ). The size of this correlation, and inspection of the scatterplot (see OSM), indicate a fair representation of couples experiencing similar or different levels of felt-loved.

### *Primary Analyses: Dyadic Effects of Feeling Loved on Destructive Behavior*

The aims of the original study involved distinguishing between verbal and nonverbal components of destructive behavior, but our investigation examining the effects of felt-loved on destructive behavior is relevant to both verbal and nonverbal components of destructive behavior. Accordingly, we ran our primary analyses with the verbal and non-verbal measures of destructive behavior nested within individuals, and individuals nested within couples (see OSF for data and syntax). We applied repeated-measures dyadic regression procedures outlined by Kenny et al. (2006) to model the degree to which actors', partners', and actors'  $\times$  partners' felt-loved predicted actors' destructive behavior during couples' discussions, and included the main and interaction effects of behavioral type (verbal = -1; nonverbal = 1) to test whether the effects differed across verbal and nonverbal ratings.<sup>7</sup>

As shown in Table 5, significant actors'  $\times$  partners' felt-loved on actors' destructive behavior emerged (shown in bold), and this effect did not differ across verbal versus nonverbal ratings of destructive behavior (shown by the nonsignificant 3-way interaction of actors'  $\times$  partners' felt-loved  $\times$  destructive behavior type). Despite the actors'  $\times$  partners' felt-loved interaction effect being relatively weaker than in Study 1, decomposing the interaction revealed a *Strong-Link/Mutual Felt-Unloved* pattern. As shown in Figure 4, actors' lower

---

<sup>7</sup> Nesting verbal and nonverbal ratings of destructive behavior within individuals had the advantages of accounting for dependence across the two ratings of destructive behavior and providing the means to directly test for differences across verbal versus nonverbal destructive behavior. Averaging verbal and nonverbal destructive behavior scores across the discussion yielded similar results.

felt-loved predicted greater destructive behavior when partners also experienced lower felt-loved (solid line;  $b = -.14$ ,  $t = -4.63$ ,  $p < .001$ ,  $r = .30$ ), but not when partners' felt-loved was high (dashed line;  $b = -.03$ ,  $t = -.65$ ,  $p = .518$ ,  $r = .04$ ). Accordingly, actors whose felt-loved was low exhibited greater destructive behavior when partners' felt-loved was low compared to when partners' felt-loved was high (left side of figure;  $b = -.17$ ,  $t = -5.43$ ,  $p < .001$ ,  $r = .35$ ). Actors whose felt-loved was high exhibited similarly low levels of destructive behavior across levels of partners' felt-loved (right side of figure;  $b = -.05$ ,  $t = -1.21$ ,  $p = .23$ ,  $r = .08$ ). This interaction pattern provides additional supporting evidence that partners' high felt-loved can buffer the association between actors' low felt-loved and actors' greater destructive behavior (*strong link*), such that actors' destructive behavior is most likely highest when both actors *and* partners feel unloved (*mutual felt-unloved*; as depicted in Figure 1, Panel B).

**Table 5. The Effects of Actors' and Partners' Felt-Loved on Actors' Destructive Behavior within Couples' Discussion about Different Preferences (Study 2)**

Predictors	Actors' Destructive Behavior					
	<i>B</i>	<i>t</i>	95% CI		<i>p</i>	<i>r</i>
			Low	High		
Intercept	1.68	50.82	1.611	1.741	<.001	.96
Actors' Felt-Loved	-.08	-3.42	-.133	-.036	.001	.16
Partners' Felt-Loved	-.11	-4.36	-.156	-.059	<.001	.21
Actors' × Partners' Felt-Loved	<b>.06</b>	<b>2.19</b>	<b>.005</b>	<b>.105</b>	<b>.030</b>	<b>.15</b>
Beh Type	.67	20.27	.602	.732	<.001	.81
Actors' Felt-Loved × Beh Type	.04	1.52	-.011	.086	.129	.07
Partners' Felt-Loved × Beh Type	.08	3.19	.030	.127	.002	.15
Actors' × Partners' Felt-Loved × Beh Type	.01	.31	-.042	.058	.755	.02

*Note.* Beh Type = type of destructive behavior (verbal = -1; nonverbal = 1). The significant actors' × partners' felt-loved interaction effect shown in bold is presented in Figure 4. CI = confidence interval.

### ***Secondary Analyses: Role of Partners' Behavior***

We again tested whether the *Strong-Link/Mutual Felt-Unloved* pattern emerged because partners who were high in felt-loved enacted greater *loving* behavior, which in turn buffered the effect of actors feeling unloved on greater destructive behavior (see Figure 2).

Unlike Study 1, partners' felt-loved did not significantly predict partners' positive behavior ( $b = .02, t = 1.13, p = .258, r = .05$ ; regardless of verbal vs. nonverbal ratings:  $b = .02, t = .71, p = .479, r = .03$ ). Actors' felt-loved  $\times$  partners' positive behavior also did not significantly interact to predict actors' destructive behavior ( $b = -.06, t = -1.45, p = .149, r = .08$ ; regardless of verbal vs. nonverbal ratings:  $b = .05, t = 1.28, p = .201, r = .07$ ). Thus, partners' positive behavior did not explain the strong-link effect of partners' high felt-loved. Accordingly, rerunning the primary analyses when also modelling the effects of actors' felt-loved  $\times$  partners' positive behavior did not reduce the actors'  $\times$  partners' felt-loved interaction shown in Figure 4 ( $b = .06, t = 2.29, p = .023, r = .16$ ).<sup>8</sup>

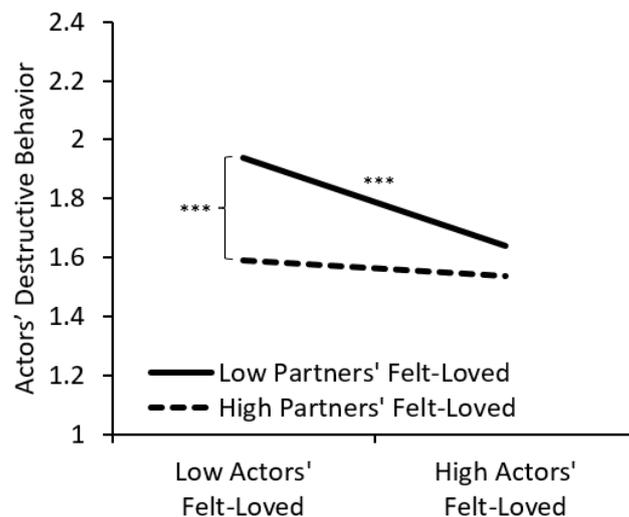


Figure 4. The effects of Actors' and Partners' Felt-Loved on Actors' Destructive Behavior within Couples' Discussion about Different Preferences (Study 2).

Note. Low and high levels of Actors' and Partners' Felt-Loved represent 1 SD below and above the mean. The simple effects of the slopes and contrasts are marked \*\*\*  $p < .001$ .

### Additional Analyses

<sup>8</sup> For completeness, we also assessed the potential role of partners' destructive behavior. Partners' higher felt-loved predicted lower partners' destructive behavior ( $b = -.11, t = -4.38, p < .001, r = .20$ ; regardless of verbal vs. nonverbal ratings:  $b = .04, t = 1.59, p = .112, r = .08$ ), but the actors' felt-loved  $\times$  partners' destructive behavior was not significant ( $b = .06, t = 1.81, p = .071, r = .09$ ; regardless of verbal vs. nonverbal ratings:  $b = -.06, t = -1.63, p = .105, r = .08$ ). Thus, partners' lower destructive behavior did not explain the strong-link effect of partners' high felt-loved. Accordingly, rerunning the primary analyses when also modelling the effects of actors' felt-loved  $\times$  partners' destructive behavior did not reduce the significant actors'  $\times$  partners' felt-loved interaction shown in Figure 4 ( $b = .06, t = 3.05, p = .002, r = .15$ ).

**Chronic Feelings of Being Unloved.** There were no significant interactions between actors'  $\times$  partners' attachment anxiety or actors  $\times$  partners' self-esteem predicting actors' destructive behavior, and controlling for these indicators of chronic felt-(un)loved did not alter the actors'  $\times$  partners' felt-loved interaction (see OSM).

### Study 3

Study 2 provided replication support for the *Strong-Link/Mutual Felt-Unloved* pattern of actors'  $\times$  partners' felt-loved on actors' destructive behavior that was shown in Study 1, despite a different and more diffuse assessment of destructive behavior. In Study 3, we aimed to replicate and extend the *Strong-Link/Mutual Felt-Unloved* pattern of felt-loved within two interaction contexts: couples' conflict discussions and family interactions involving couples working together with their 4-5 year old child. In addition, because the correlational nature of data collected within the same interaction prevents conclusions about the direction of effects, in Study 3 we examined evidence of causal direction by testing whether actors'  $\times$  partners' felt-loved in couples' conflict discussions carry over to predict actors' destructive behavior in the subsequent family interaction. Couples were video recorded discussing an area of relationship conflict as in Study 1 and then video recorded participating in a family activity with their child. The family interactions provided a context to examine whether couples can recover from conflict to work together and co-parent their child. Immediately after each interaction, each participant reported how much they felt loved by their partner during the interaction. Independent coders rated how much each person exhibited destructive and loving behavior within each interaction (see Table 2).

### Method

#### *Participants*

The sample included 104 couples (103 mixed-gender, 1 same-gender) and their 4-5-year-old child. Families were recruited via advertisements posted around community boards,

early childhood centers, on Facebook, and at annual parenting events in New Zealand. Two families were excluded from analyses because of video recording equipment failure or the parents did not speak English during the discussion. The remaining 102 families included parents who were married (84.3%) or cohabitating (15.7%) with an average relationship length of 11.71 years ( $SD = 4.06$ , range = 1.5–23). Average age was 36.87 years ( $SD = 6.35$ , range = 21–66 years) for parents and 4.98 years ( $SD = 0.31$ , range = 4.5–5.5) for children. This study received ethics approval. Each family was reimbursed NZD\$100. See OSM for how sample size was determined and prior use of this sample. Post hoc power analyses using Monte Carlo simulations with 1,000 repetitions modeling the effects of each dyad member with equality constraints based on the parameter estimates from our primary analyses (Bolger & Laurenceau, 2013) revealed good statistical power (.98 to 1.00) to detect the actor, partner, and actor  $\times$  partner effects.

### ***Materials and Procedure***

During a laboratory session, parents completed questionnaires and engaged in a video-recorded conflict discussion while their children participated in a series of tasks (unrelated to this study) in a separate room. Parents independently identified and ranked in importance their two most serious relationship conflicts. Following a warm-up discussion, couples had a 7-minute discussion about the highest-ranked issue shared across couple members. Couples were instructed to talk about the issue as they normally would. Immediately following the discussion, each dyad member completed assessments of how much they felt loved during the conflict discussion. Parents were then reunited with their child to participate in a family activity. Families were given paper materials and were instructed to work together as a family to build the best tower they can within 10 minutes. Immediately following the activity, parents completed assessments of how much they felt loved by their partner during the family interaction. Independent coders rated the degree to

which each parent exhibited destructive and loving behavior during the conflict discussion and family activity.

### **Questionnaire Measures.**

**Attachment Anxiety.** The same scale used in Studies 1-2 assessed attachment anxiety ( $M = 2.70$ ,  $SD = 0.98$ ,  $\alpha = .78$ ). Self-esteem was not assessed.

### **Conflict Discussion Measures.**

**Felt-Loved.** Participants rated the same items as in Study 1 to assess how much they felt loved during the conflict discussion ( $\alpha = .91$ ; see Table 3).

**Destructive Behavior.** Three trained coders independently rated how much each participant exhibited destructive behavior during the conflict discussion. The destructive behaviors coded were selected for their consistency across major coding systems, including: (a) criticizing, derogating or blaming, (b) threatening or commanding, (c) expressing anger and irritation, and (d) being rejecting, invalidating or domineering (Overall, 2018; see OSM for more details). Coders were given detailed descriptions of this category of behaviors, and then rated the levels of each person's destructive behavior within each 30-second segment of the conflict discussion (1 = *low*, 7 = *high*). Each couple member was coded in separate viewings (order counterbalanced). Coders' ratings were averaged for each 30-second segment (ICCs = .92-.95), and then averaged across the discussion ( $\alpha = .94$ ) to create destructive behavior scores during the conflict discussion (see Table 3).

**Loving Behavior.** A different team of coders independently rated how much each person exhibited loving behavior during the conflict discussion. The behaviors were adapted from Maisel and colleagues (2008). Coders used detailed descriptions of (1) caring, (2) understanding, and (3) validation (see OSM for more details) to rate how much each person exhibited caring, understanding, and validation across the conflict discussion (1 = *low*, 7 = *high*). Coders' ratings were reliable (ICCs = .90-.94) and were averaged ( $\alpha = .85$ ; Table 3).

### **Family Activity Measures.**

***Felt-Loved.*** Participants rated the same items as after the conflict discussion to assess how much they felt loved by their partner during the family activity ( $\alpha = .90$ ; see Table 3).

***Destructive Behavior.*** A different team of three trained coders than those who rated destructive behavior during the conflict discussion independently rated how much each parent exhibited destructive behavior toward their partner during the family activity. The destructive behaviors coded were adapted from established coparenting coding systems that assess hostility between couples during interactions with their children (Cowan & Cowan, 2002; Schoppe et al., 2001; see OSM for more details). Coders rated the degree to which each parent exhibited the same type of destructive behaviors assessed during the couple's conflict discussion applied to the coparenting setting, including blaming, criticizing, and expressing frustration toward the partner. Following detailed descriptions of these behaviors, coders rated the presence of each parent's destructive behavior across the family activity (1 = *low*, 7 = *high*). Coders' ratings were reliable (ICC = .92) and averaged to create an overall score of each parent's destructive behavior during the family activity (see Table 3).

***Loving Behavior.*** The same team of coders who rated destructive behavior during the family activity also rated how much each person exhibited loving behavior, which captured similar loving behaviors assessed during the conflict discussion applied to the coparenting setting, including expressing affection, warmth, and positive regard (1 = *low*, 7 = *high*; see OSM for more details). Coders' ratings were reliable (ICC = .83) and averaged to assess each parent's loving behavior (see Table 3).

### **Results**

As in Studies 1 and 2, actors' and partners' felt-loved scores were relatively highly correlated during the conflict discussion ( $r = .60$ ) and family activity ( $r = .41$ ). Nonetheless,

the scatterplots (see OSM) indicate a fair representation of couples experiencing relatively similar or different levels of felt-loved.

***Primary Analyses: Dyadic Effects of Feeling Loved on Destructive Behavior***

We nested felt-loved and destructive behavior within the conflict discussion and family to account for dependence across the two interactions and directly test for differences across the interaction contexts (see OSF for data for syntax). We applied repeated-measures dyadic regression procedures (Kenny et al., 2006) to model the degree to which actors' felt-loved, partners' felt-loved, and actors'  $\times$  partners' felt-loved predicted actors' destructive behavior, and included the main and interaction effects of the type of interaction (conflict discussion = -1, family activity = 1) to test whether the effects differed across the two types of interaction. As shown in Table 6, the actors'  $\times$  partners' felt-loved interaction on actors' destructive behavior was significant (shown in bold), and this effect did not significantly differ across the conflict discussion and family activity, providing support that the effects replicated within both interaction contexts.

**Table 6. The Effects of Actors' and Partners' Felt-Loved on Actors' Destructive Behavior within Couples' Conflict Discussion and Family Interaction (Study 3)**

Predictors	Actors' Destructive Behavior					
	<i>B</i>	<i>t</i>	95% CI		<i>p</i>	<i>r</i>
			Low	High		
Intercept	1.50	26.17	1.384	1.610	<.001	.88
Actors' Felt-Loved	-.11	-2.61	-.196	-.027	.009	.13
Partners' Felt-Loved	-.16	-3.82	-.248	-.079	<.001	.19
Actors' $\times$ Partners' Felt-Loved	<b>.11</b>	<b>3.37</b>	<b>.046</b>	<b>.175</b>	<b>.001</b>	<b>.24</b>
Interaction Type	-.11	-1.86	-.219	.007	.065	.13
Actors' Felt-Loved $\times$ Interaction Type	-.02	-.40	-.101	.067	.688	.02
Partners' Felt-Loved $\times$ Interaction Type	.07	1.66	-.013	.155	.098	.09
Actors' $\times$ Partners' Felt-Loved $\times$ Interaction Type	.05	1.47	-.016	.113	.142	.11

*Note.* Interaction Type = type of interaction (-1 = conflict discussion; 1 = family activity). The significant actors'  $\times$  partners' felt-loved interaction effect shown in bold is presented in Figure 5. CI = confidence interval.

As shown in Figure 5, a *Strong-Link/Mutual Felt-Unloved* pattern was evident.

Actors' lower felt-loved predicted greater destructive behavior when partners also

experienced lower felt-loved (solid line;  $b = -.24$ ,  $t = -5.59$ ,  $p < .001$ ,  $r = .38$ ), but not when partners' felt-loved was high (dashed line;  $b = .02$ ,  $t = .23$ ,  $p = .817$ ,  $r = .02$ ). Accordingly, actors who felt less loved exhibited greater destructive behavior when partners' felt-loved was low compared to when partners' felt-loved was high (left side of figure;  $b = -.29$ ,  $t = -6.79$ ,  $p < .001$ ,  $r = .44$ ), but actors who felt more loved exhibited similarly low levels of destructive behavior across levels of partners' felt-loved (right side of figure;  $b = -.04$ ,  $t = -.52$ ,  $p = .601$ ,  $r = .04$ ). This pattern provides replicated evidence that partners' high felt-loved can buffer the effect of actors feeling unloved on destructive behavior (*strong link*), and that higher actors' destructive behavior is most likely to occur when both actors *and* partners feel unloved (*mutual felt-unloved*).

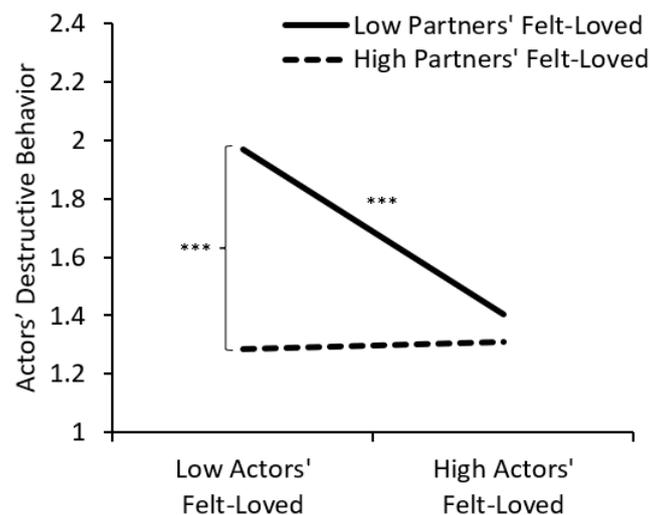


Figure 5. The effects of Actors' and Partners' Felt-Loved on Actors' Destructive Behavior within Couples' Conflict Discussion and Family Interaction (Study 3).

Note. Low and high levels of Actors' and Partners' Felt-Loved represent 1 SD below and above the mean. The simple effects of the slopes and contrasts are marked \*\*\*  $p < .001$ .

### Secondary Analyses: Role of Partners' Behavior

Secondary analyses again indicated that partners' loving behavior did not explain the strong-link effect of partners' high felt-loved. Partners' higher felt-loved predicted greater partners' loving behavior ( $b = .32$ ,  $t = 6.27$ ,  $p < .001$ ,  $r = .31$ ; regardless of interaction type:  $b$

= -.02,  $t = -.45$ ,  $p = .654$ ,  $r = .02$ ), but actors' felt-loved  $\times$  partners' loving behavior did not significantly interact to predict actors' destructive behavior ( $b = .05$ ,  $t = 1.33$ ,  $p = .186$ ,  $r = .07$ ; regardless of interaction type:  $b = -.00$ ,  $t = -.06$ ,  $p = .956$ ,  $r = .00$ ). The actors'  $\times$  partners' felt-loved interaction shown in Figure 5 remained significant ( $b = .12$ ,  $t = 3.26$ ,  $p = .001$ ,  $r = .21$ ) when also modelling the effects of actors' felt-loved  $\times$  partners' loving behavior.<sup>9</sup>

### ***Additional Analyses***

**Chronic Feelings of Being Unloved.** A significant actors'  $\times$  partners' attachment anxiety interaction revealed a *Strong-Link/Mutual Felt-Unloved* pattern within the family activity, but not conflict discussion (see OSM). Simultaneously modelling actors'  $\times$  partners' felt-loved revealed that the actors'  $\times$  partners' felt-loved interaction remained significant.

**Spillover Effects Across Interactions.** Our assessment of two sequential interactions provided one way to examine evidence for the direction of links between actors' and partners' felt-loved and actors' destructive behavior by testing spillover effects from the conflict discussion to the family activity. We tested whether the effects occurred in our theorized causal direction by modeling the degree to which actors' felt-loved, partners' felt-loved, and actors'  $\times$  partners' felt-loved in the conflict discussion (Interaction 1) predicted actors' destructive behavior in the family activity (Interaction 2), controlling for actors' destructive behavior in the conflict discussion (Interaction 1). The actors'  $\times$  partners' felt-loved interaction was not significant (top of Table 7). We also tested whether the effects occurred in the alternative causal direction; perhaps actors who feel unloved but nonetheless are able to inhibit destructive behavior might lead to partners subsequently feeling more

---

<sup>9</sup> Similarly, partners' lower *destructive* behavior did not explain the strong-link effect of partners' high felt-loved. Partners' higher felt-loved predicted lower partners' destructive behavior ( $b = -.19$ ,  $t = -4.82$ ,  $p < .001$ ,  $r = .24$ ; regardless of interaction type:  $b = -.00$ ,  $t = -.06$ ,  $p = .952$ ,  $r = .00$ ), but actors' felt-loved  $\times$  partners' destructive behavior did not significantly interact to predict actors' destructive behavior ( $b = -.01$ ,  $t = -.19$ ,  $p = .852$ ,  $r = .01$ ; regardless of interaction type:  $b = .04$ ,  $t = 1.40$ ,  $p = .162$ ,  $r = .07$ ). The actors'  $\times$  partners' felt-loved interaction shown in Figure 5 remained significant ( $b = .09$ ,  $t = 3.18$ ,  $p = .002$ ,  $r = .16$ ) when also modelling the effects of actors' felt-loved  $\times$  partners' destructive behavior.

loved. Modeling actors' felt-loved, actors' destructive behavior, and actors' felt-loved  $\times$  actors' destructive behavior in the conflict discussion (Interaction 1) as predictors of partners' felt-loved in the family activity (Interaction 2) revealed that the actors' felt-loved  $\times$  destructive behavior interaction was not significant (bottom of Table 7). In sum, the dyadic effects located within each interaction supported a strong-link pattern, but we found no evidence of spillover across interactions.

**Table 7. Tests of Spillover Effects of Actors' and Partners' Felt-Loved in Couples' Conflict Discussion to Actors' Subsequent Destructive Behavior in Family Interaction (Study 3)**

Predictors	Subsequent Outcome in I2					
	B	t	95% CI		p	r
			Low	High		
<i>Theorized Spillover Effects: Predicting Actors' Destructive Behavior in I2</i>						
Intercept	1.40	12.21	1.171	1.626	<.001	.79
Actors' Destructive Behavior in I1	.41	4.04	.211	.615	<.001	.34
Actors' Felt-Loved in I1	.02	.25	-.147	.191	.800	.02
Partners' Felt-Loved in I1	.15	1.70	-.024	.322	.092	.13
Actors' $\times$ Partners' Felt-Loved in I1	.10	1.51	-.032	.230	.136	.15
<i>Reverse Spillover Effects: Predicting Partners' Felt-Loved in I2</i>						
Intercept	5.80	63.53	5.615	5.977	<.001	.99
Partners' Felt-Loved in I1	.46	5.94	.310	.619	<.001	.41
Actors' Felt-Loved in I1	-.03	-.42	-.183	.119	.672	.03
Actors' Destructive Behavior in I1	.02	.13	-.246	.280	.900	.01
Actors' Felt-Loved $\times$ Destructive Behavior in I1	-.02	-.46	-.127	.079	.644	.04

Note. CI = confidence interval. I1 = Interaction 1 (couples' conflict discussion); I2 = Interaction 2 (family interaction).

#### Study 4

Study 3 affirmed that the *Strong-Link/Mutual Felt-Unloved* pattern of actors'  $\times$  partners' felt-loved on actors' destructive behavior replicated within couples' conflict discussions and extended to couples working together in a family activity with their child. As in Studies 1-2, partners' loving behavior did not explain the strong-link effect of partners' high felt-loved. The two sequential interactions in Study 3 provided the opportunity to examine evidence of causal direction by testing spillover effects from couples' conflict

discussion to a following family activity, but the results revealed no evidence of spillover effects in the theorized or reverse direction. One possibility is that the family activity reduced the possibility of spillover effects to emerge because the less conflictual, risky context limited destructive responses or even created an opportunity for the couple to reunite as a couple focused on their child. By contrast, it is within couples' challenging interactions where feelings of being unloved are particularly likely to arise and create problematic interaction dynamics. We tested this possibility in Studies 4 and 5, which were analyzed after initial review of Studies 1-3 and Supplemental Studies 1-3 in order to replicate and provide directional tests of the *Strong-Link/Mutual Felt-Unloved* pattern of felt-loved.

Study 4 involved two sequential interactions of couples' conflict discussions—challenging contexts that heighten self-protective concerns and destructive behavior. We aimed to replicate the *Strong-Link/Mutual Felt-Unloved* pattern of felt-loved within couples' conflict discussions, and we tested for spillover effects across discussions to examine whether there was evidence for our theorized direction of effects. Couples were video recorded discussing two areas of relationship conflict in which one couple member wanted change in the other. After both discussions, each person reviewed recordings of their interactions and rated how much they felt loved within each discussion. Independent coders rated how much each person exhibited destructive and loving behavior during each discussion (see Table 2).

## **Method**

### ***Participants***

Study 4 involved 180 mixed-gender couples recruited via advertisements posted across a large city-based university in New Zealand (e.g., health and recreation centers). Couples (73% married/cohabitating) had an average relationship length of 2.89 years ( $SD = 2.12$ , range = 2 months–13.08 years), and average age of 23.07 years ( $SD = 4.19$ , range = 18–45). Couples were reimbursed NZ\$100. This study received ethics approval. The sample size

of Study 4 was near double of Study 3 that also involved sequential interactions, and thus (as clear in the analyses that follow) Study 4 had sufficient power to detect an actor  $\times$  partner effect of the same size as Study 3. However, given that the designs differed and we could not anticipate the size of the effects for any differences across the two conflict interactions, we report power to detect smaller effect sizes (as emerged in Study 4): Monte Carlo simulations with 1,000 repetitions based on the estimates from our primary analyses revealed statistical power of .98 to 1.00 to detect the actor, partner, and actor  $\times$  partner effects.

### ***Materials and Procedure***

During a laboratory session, parents completed questionnaires measures, and identified and ranked in importance their three most serious relationship conflicts that involved desiring change in their partner's thoughts, feelings or behavior. Couple members rarely (4.5%) identified the same issues, in which case those topics were discarded. Couples had two 7-minute discussions: one discussion focused on an area of conflict involving women (as agent) wanting change in their partner (target), and the other discussion focused on an area of conflict involving men (as agent) wanting change in their partner (target; discussion order was counterbalanced across gender). After both conflict discussions, each couple member reviewed their interactions and independently completed assessments of how much they felt loved during each discussion. Independent coders rated the degree to which each couple member exhibited destructive and loving behavior during each discussion.

#### **Questionnaire Measures.**

***Attachment Anxiety and Self-Esteem.*** The same scale used in Studies 1-4 assessed attachment anxiety ( $M = 3.06$ ,  $SD = 1.09$ ,  $\alpha = .81$ ) and the same scale used in Studies 1-3 assessed self-esteem ( $M = 5.25$ ,  $SD = 1.04$ ,  $\alpha = .88$ ).

#### **Conflict Discussion Measures.**

***Felt-Loved.*** Participants independently reviewed recordings of their interactions, and rated four items similar to that in Studies 1-3 (see Table 2) to assess how much they felt loved by their partner within each 30-second segment of each conflict discussion (“I felt cared for by my partner”; “I felt accepted by my partner”; “I felt valued by my partner”; “I felt understood by my partner”; 1 = *not at all*, 7 = *very much*). The items were averaged for each 30-second segment and then averaged across each discussion ( $\alpha > .78$ ; see Table 3).

***Destructive Behavior.*** Following the protocols for coding destructive behavior during the conflict discussion in Study 3, three trained coders independently rated how much each participant exhibited destructive behavior during each 30-second segment of each conflict discussion (1 = *low*, 7 = *high*). Each couple member was coded in separate viewings (order counterbalanced). Coders’ ratings were averaged for each 30-second segment (ICCs  $> .85$ ), and then averaged across each discussion ( $\alpha > .80$ ; see Table 3).

***Loving Behavior.*** The same team of coders also independently rated how much each person exhibited loving behavior during each 30-second segment of each conflict discussion (1 = *low*, 7 = *high*). Coders were guided by detailed descriptions of loving behaviors that include: (a) attempts to soften conflict, (b) expressing affection and positive affect, (c) emphasizing positive aspects of a partner, and (d) restraining negative reactions (see OSM for more details). Coders’ ratings were averaged for each 30-second segment (ICCs  $> .86$ ), and then averaged across the discussion ( $\alpha > .93$ ; see Table 3).

## **Results**

The correlations between actors’ and partners’ felt-loved within the two conflict discussions were similar to Studies 1-3 ( $r = .51$  and  $.55$ ). The size of these correlations, and inspection of the scatterplots (see OSM), indicate a fair representation of couples experiencing relatively similar or different levels of felt-loved.

### ***Primary Analyses: Dyadic Effects of Feeling Loved on Destructive Behavior***

We nested felt-loved and destructive behavior within the two conflict discussions to account for dependence across the two interactions (see OSF for data for syntax). We applied repeated-measures dyadic regression procedures (Kenny et al., 2006) to model the degree to which actors' felt-loved, partners' felt-loved, and actors'  $\times$  partners' felt-loved predicted actors' destructive behavior, and included the main and interaction effects of conflict roles (agent desiring change in partner = -1; target being asked to change = 1) to test whether the effects differed across the two conflict roles.

**Table 8. The Effects of Actors' and Partners' Felt-Loved on Actors' Destructive Behavior within Couples' Conflict Discussions (Study 4)**

Predictors	Actors' Destructive Behavior					
	<i>B</i>	<i>t</i>	95% CI		<i>p</i>	<i>r</i>
			Low	High		
Intercept	1.79	42.14	1.708	1.876	<.001	.91
Actors' Felt-Loved	-.17	-7.36	-.220	-.127	<.001	.27
Partners' Felt-Loved	-.16	-6.90	-.209	-.116	<.001	.25
Actors' $\times$ Partners' Felt-Loved	<b>.05</b>	<b>2.58</b>	<b>.012</b>	<b>.093</b>	<b>.010</b>	<b>.14</b>
Conflict Role	-.10	-3.60	-.150	-.044	<.001	.19
Actors' Felt-Loved $\times$ Conflict Role	-.01	-.38	-.068	.046	.702	.02
Partners' Felt-Loved $\times$ Conflict Role	.03	1.17	-.023	.091	.242	.06
Actors' $\times$ Partners' Felt-Loved $\times$ Conflict Role	.02	1.38	-.008	.043	.169	.07

*Note.* Conflict Role is coded as -1 = agent desiring change and 1 = target being asked to change. The significant actors'  $\times$  partners' felt-loved interaction effect shown in bold is presented in Figure 6. CI = confidence interval.

As shown in Table 8, the actors'  $\times$  partners' felt-loved interaction on destructive behavior was significant (shown in bold), and this effect did not differ across conflict roles. As shown in Figure 6, a *Strong-Link/Mutual Felt-Unloved* pattern was evident. Actors' lower felt-loved predicted greater destructive behavior, but this actor effect was stronger when partners also experienced lower felt-loved (solid line;  $b = -.25$ ,  $t = -7.41$ ,  $p < .001$ ,  $r = .37$ ) than when partners' felt-loved was high (dashed line;  $b = -.10$ ,  $t = -2.49$ ,  $p = .013$ ,  $r = .13$ ). Accordingly, actors who felt less loved exhibited greater destructive behavior when partners' felt-loved was low compared to when partners' felt-loved was high (left side of figure;  $b = -.24$ ,  $t = -7.08$ ,  $p < .001$ ,  $r = .35$ ), and this difference in actors' destructive behavior across

levels of partners' felt-loved was greater than when actors experienced high felt-loved (right side of figure;  $b = -.09$ ,  $t = -2.21$ ,  $p = .028$ ,  $r = .12$ ). This dyadic pattern provides further evidence that partners' high felt-loved can buffer the effect of actors feeling unloved on destructive behavior (*strong link*), suggesting that higher actors' destructive behavior is most likely to occur when both actors *and* partners feel unloved (*mutual felt-unloved*).

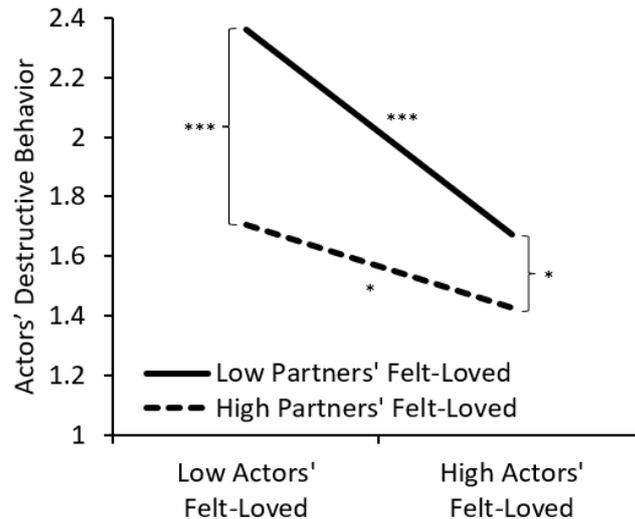


Figure 6. The effects of Actors' and Partners' Felt-Loved on Actors' Destructive Behavior within Couples' Conflict Discussions (Study 4).

Note. Low and high levels of Actors' and Partners' Felt-Loved represent 1 *SD* below and above the mean. The simple effects of the slopes and contrasts are marked \*  $p < .05$  and \*\*\*  $p < .001$ .

### Secondary Analyses: Role of Partners' Behavior

As in the prior studies, secondary analyses illustrated that partners' loving behavior did not account for the strong-link effect. Partners' higher felt-loved predicted greater partners' loving behavior ( $b = .22$ ,  $t = 10.57$ ,  $p < .001$ ,  $r = .40$ ; regardless of conflict role:  $b = .02$ ,  $t = .90$ ,  $p = .368$ ,  $r = .04$ ), but actors' felt-loved  $\times$  partners' loving behavior did not significantly interact to predict actors' destructive behavior ( $b = -.03$ ,  $t = -1.19$ ,  $p = .236$ ,  $r = .05$ ; regardless of conflict role:  $b = -.01$ ,  $t = -.49$ ,  $p = .621$ ,  $r = .03$ ). The actors'  $\times$  partners' felt-loved interaction shown in Figure 6 remained significant ( $b = .08$ ,  $t = 3.16$ ,  $p = .002$ ,  $r =$

.18) when also modeling the effects of actors' felt-loved  $\times$  partners' loving behavior.<sup>10</sup>

### *Additional Analyses*

**Chronic Feelings of Being Unloved.** There were no significant interactions between actors'  $\times$  partners' attachment anxiety or actors  $\times$  partners' self-esteem on actors' destructive behavior, and controlling for these indicators of actors' and partners' chronic felt-(un)loved did not alter the actors'  $\times$  partners' felt-loved interaction (see OSM).

**Spillover Effects Across Interactions.** We tested whether the effects occurred in our theorized causal direction by modeling the degree to which actors' felt-loved, partners' felt-loved, and actors'  $\times$  partners' felt-loved in the first conflict discussion (Interaction 1) predicted actors' destructive behavior in the second conflict discussion (Interaction 2), controlling for actors' destructive behavior in the first conflict discussion (Interaction 1). As shown in the top of Table 9, actors'  $\times$  partners' felt-loved in the first conflict discussion (Interaction 1) significantly predicted actors' destructive behavior in the second conflict discussion (Interaction 2) which replicated the *Strong-Link/Mutual Felt-Unloved* pattern. As shown in Figure 7, actors' lower felt-loved predicted greater destructive behavior in the subsequent conflict discussion when partners also experienced low felt-loved (solid line;  $b = -.10$ ,  $t = -2.71$ ,  $p = .008$ ,  $r = .20$ ), but not when partners experienced high felt-loved (dashed line;  $b = .05$ ,  $t = 1.12$ ,  $p = .267$ ,  $r = .09$ ).<sup>11</sup>

<sup>10</sup> Similarly, partners' higher felt-loved predicted lower partners' *destructive* behavior ( $b = -.21$ ,  $t = -8.66$ ,  $p < .001$ ,  $r = .31$ ; regardless of conflict role:  $b = -.02$ ,  $t = -.83$ ,  $p = .407$ ,  $r = .04$ ), but actors' felt-loved  $\times$  partners' destructive behavior did not significantly interact to predict actors' destructive behavior ( $b = -.00$ ,  $t = -.21$ ,  $p = .837$ ,  $r = .01$ ; regardless of conflict role:  $b = .01$ ,  $t = .26$ ,  $p = .794$ ,  $r = .01$ ). However, the actors'  $\times$  partners' felt-loved interaction became weaker ( $b = .03$ ,  $t = 1.81$ ,  $p = .071$ ,  $r = .07$ ) when simultaneously modelling the effects of actors' felt-loved  $\times$  partners' destructive behavior. Given that partners' lower destructive behavior did not have the same buffering effect as partners' high felt-loved, partners' destructive behavior could not have explained the strong-link pattern, and the reduction in the actor  $\times$  partner felt-loved interaction (which did not occur in any other study) was likely due to the shared variance across actors' and partners' destructive behavior.

<sup>11</sup> Unlike the other studies, in Study 4 we had repeated assessment of felt-loved and destructive behavior within each 30-second segment of each conflict discussion. This provided an alternative way to examine evidence of directional effects by examining whether within-person variations in actors'  $\times$  partners' felt-loved in one 30-second segment predicted actors' destructive behavior in the next 30-second segment, controlling for average levels of actors'  $\times$  partners' felt-loved across the interaction as depicted in Figure 6 (see OSM). There were no within-person carryover effects from one segment to the next. Nonetheless, average levels of actors'  $\times$  partners' felt-loved across the interaction continued to predict actors' destructive behavior in these models. Thus, the

**Table 9. Tests of Spillover Effects of Actors' and Partners' Felt-Loved on Actors' Subsequent Destructive Behavior across Couples' Conflict Discussions (Study 4)**

Predictors	Subsequent Outcome in I2					
	B	t	95% CI		p	r
			Low	High		
<i>Theorized Spillover Effects: Predicting Actors' Subsequent Destructive Behavior in I2</i>						
Intercept	1.81	46.91	1.730	1.882	<.001	.96
Actors' Destructive Behavior in I1	.68	17.81	.604	.754	<.001	.70
Actors' Felt-Loved in I1	-.03	-.99	-.080	.026	.323	.05
Partners' Felt-Loved in I1	-.02	-.92	-.078	.028	.356	.05
Actors' × Partners' Felt-Loved in I1	<b>.06</b>	<b>2.57</b>	<b>.013</b>	<b>.097</b>	<b>.011</b>	<b>.19</b>
<i>Reverse Spillover Effects: Predicting Partners' Subsequent Felt-Loved in I2</i>						
Intercept	5.15	96.33	5.041	5.251	<.001	.99
Partners' Felt-Loved in I1	.79	21.60	.722	.867	<.001	.76
Actors' Felt-Loved in I1	.13	3.46	.055	.200	.001	.19
Actors' Destructive Behavior in I1	-.07	-1.17	-.177	.045	.244	.06
Actors' Felt-Loved × Destructive Behavior in I1	.02	.60	-.044	.084	.548	.04

Note. The significant actors' × partners' felt-loved interaction effect presented in bold is presented in Figure 7. CI = confidence interval. I1 = Interaction (first conflict discussion); I2 = Interaction 2 (second conflict discussion).

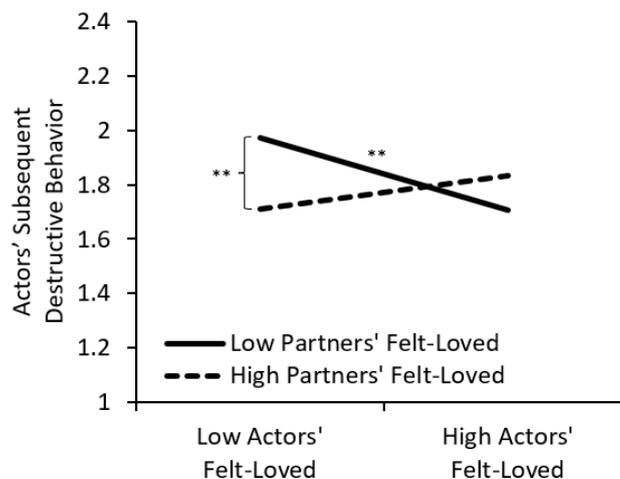


Figure 7. The Spillover effects of Actors' and Partners' Felt-Loved on Actors' Subsequent Destructive Behavior across Couples' Conflict Discussions (Study 4).

Note. Low and high levels of Actors' and Partners' Felt-Loved represent 1 SD below and above the mean. The simple effects of the slopes and contrasts are marked \*\*  $p < .01$ .

We then tested whether the effects might have occurred in the alternative causal

processes associated with the dyadic strong-link pattern may emerge across the course of an interaction rather than uniformly occurring across each connected 30-second segments within the interaction in the same way across couples (see OSM for more details).

direction by modeling the degree to which actors' felt-loved  $\times$  actors' destructive behavior in the first conflict discussion (Interaction 1) predicted partners' felt-loved in the second conflict discussion (Interaction 2). The actors' felt-loved  $\times$  actors' destructive behavior interaction predicting partners' felt-loved in the subsequent conflict discussion was not significant (bottom of Table 9). These results provide evidence that actors' and partners' felt-loved combine to predict actors' subsequent destructive behavior (rather than actors' felt-loved and destructive behavior predicting partners' subsequent felt-loved), supporting our theorizing that partners' high felt-loved can buffer the destructive behavior associated with actors' low felt-loved.<sup>12</sup>

### Study 5

Study 4 replicated the *Strong-Link/Mutual Felt-Unloved* pattern of actors'  $\times$  partners' felt-loved on actors' destructive behavior within couples' conflict discussions, and again found no evidence that partners' loving behavior accounted for the strong-link pattern. In addition, unlike in Study 3, which found no evidence of spillover effects from couples' conflict to family interactions, Study 4 provided evidence for spillover effects in our theorized causal direction when the subsequent interaction involved a more specific challenging couple context (couples' conflict), and found no support for spillover effects in the alternative causal direction. In Study 5, we assessed couples' felt-loved and destructive behavior in four sequential interactions: (1) conflict discussion, (2) discussion of relationship strengths, (3) conflict discussion, and (4) family activity involving couples working together with their 4-5 year old child. These interactions capture diagnostic situations because they require couples to (1) navigate conflicting preferences, (2) connect, identify, and reciprocate

---

<sup>12</sup> We also examined whether partners' loving or destructive behavior was a mechanism for the strong-link spillover effects of partners' felt-loved. There were no significant interactions between actors' felt-loved  $\times$  partners' loving behavior ( $b = .05, t = 1.67, p = .096, r = .09$ ) or actors' felt-loved  $\times$  partners' destructive behavior ( $b = .01, t = .22, p = .828, r = .01$ ) predicting actors' subsequent destructive behavior. Thus, unlike partners' felt-loved, partners' loving or destructive behavior did not carry over to mitigate actors' subsequent destructive behavior associated with actors' low felt-loved.

positive aspects of their relationship, and (3) cooperate and support each other's parenting.

We aimed to replicate the *Strong-Link/Mutual Felt-Unloved* pattern of felt-loved across these four interactions. Additionally, the four sequential interactions allowed for stronger tests of directional effects by disambiguating within-person change across interactions from between-person differences that persist across interactions. Based on the results of spillover effects in Studies 3 and 4, within-person spillover effects might be more evident when the subsequent interaction involves a more challenging conflictual context (subsequent couples' conflict discussion) rather than a broader, less inherently conflictual interaction (subsequent couples' discussion of relationship strengths or family activity). Couples were video recorded engaging in the four sequential interactions. Immediately after each interaction, each participant reported how much they felt loved by their partner during that interaction. Independent coders rated how much each person exhibited destructive and loving behavior within each interaction (see Table 2).

## **Method**

### ***Participants***

The sample included 285 mixed-gender couples and their 4-5-year-old child. Families were recruited via advertisements posted around community boards, early childhood centers, on Facebook, and at annual parenting events in New Zealand. Couples were married (84%) or cohabiting (16%), with an average relationship length of 11.70 years ( $SD = 4.36$ ). The average age was 37.11 years ( $SD = 5.24$ , range = 23-55). Each family was reimbursed NZD\$180 for completing a 3-hour lab-based session. This study received ethics approval. Study 5 was finalized after the initial analyses and submission of the present aims. The sample (285 couples) and number of interactions (4) far exceeded the prior studies. As is evident next, Study 5 has the power to detect the effect sizes of Study 3 and 4. However, because the design differed and we could not estimate the effect sizes of any differences

across the different types of interactions, we report power to sensitively detect the effect sizes that emerged in Study 5. Monte Carlo simulations (1,000 repetitions) using estimates from the primary analyses revealed power of 1.00 to detect the actor, partner, and actor  $\times$  partner and .90 to detect differences in actor  $\times$  partner effects across couples' conflict discussions vs. non-conflict interactions (couples' discussion of relationship strengths, family activity).

### ***Materials and Procedure***

Parents completed questionnaires and engaged in video-recorded discussions while their children participated in a series of tasks (unrelated to this study) in a separate room. Parents independently identified and ranked in importance their three most serious relationship conflicts that involved one couple member (agent) wanting to produce change (target) in the other. Following a warm-up discussion, couples engaged in four sequential interactions: (1) a 7-minute discussion about the top-ranked problem identified by one couple member, (2) a 5-minute discussion about areas of strengths in their relationship, (3) a 7-minute discussion about the top-ranked problem identified by the other couple member, and (4) a 10-minute family activity with their child involving building a tower out of paper-based materials as in Study 3.<sup>13</sup> The order of the conflict discussions (women agent-man target, man agent-women target) was counterbalanced across gender. Immediately following each of the four interactions, parents completed assessments of how much they felt loved by their partner during the interaction. Independent coders rated the degree to which each parent exhibited destructive and loving behavior during each interaction.

### **Questionnaire Measures.**

***Attachment Anxiety.*** The same scale used in Studies 1-4 assessed attachment anxiety

---

<sup>13</sup> All couples provided usable observational data for all three couple discussions. However, 13 parents were not able to be coded in the final family activity because parents did not speak English in the activity with their child (6 families) or because one parent was not visible during the family interaction (1 family). Multilevel modeling effectively accounts for missing data in one of the interactions and so the analyses were based on the total 1,134 interactions with observational data across the sample.

( $M = 2.77$ ,  $SD = 1.05$ ,  $\alpha = .80$ ). Self-esteem was not assessed.

### **Felt-Loved Measures Across all Interactions.**

Immediately following each interaction, participants rated two items to assess how much they felt loved during each discussion similar to prior studies (“I felt cared for/loved by my partner”; “I felt understood/validated by my partner”;  $\alpha s > .72$ ; see Tables 2 and 3). We included only two items because we designed the post-interaction assessments to be short and quick to complete in order to limit the time between interactions to assess spillover effects.

### **Behavioral Measures During Couples’ Conflict and Relationship Strength Discussions.**

***Destructive Behavior.*** Following the protocols for coding conflict discussions in Studies 3 and 4, two or three trained coders independently rated how much each participant exhibited destructive behavior during each 30-second segment of each discussion (1 = *low*, 7 = *high*). Each couple member was coded in separate viewings (order counterbalanced). Coders’ ratings were averaged for each 30-second segment (average ICCs  $> .90$ ), and then averaged across each discussion (see Table 3).

***Loving Behavior.*** Following the protocols for coding conflict discussions in Study 4, the same team of coders independently rated how much each person exhibited loving behavior during each 30-second segment of each discussion (1 = *low*, 7 = *high*). Coders’ ratings were averaged for each 30-second segment (average ICCs  $> .87$ ), and then averaged across each discussion (see Table 3).

### **Behavioral Measures During Family Activity.**

***Destructive Behavior.*** Following the protocols to code behaviors during the family activity in Study 3, a different team of three trained coders independently rated how much each parent exhibited destructive behavior toward their partner during the family activity (1 = *low*, 7 = *high*). Coders’ ratings were reliable (ICC = .82) and averaged (see Table 3).

**Loving Behavior.** Following the protocols of coding behaviors during the family activity in Study 3, the same coders who rated destructive behavior during the family activity also independently rated how much each parent exhibited loving behavior toward their partner. Coders' ratings were reliable ( $ICC = .77$ ) and averaged (see Table 3).

## Results

The correlations between actors' and partners' felt-loved during the two conflict discussions ( $r = .54$  and  $.45$ ) and relationship strengths discussion ( $r = .50$ ) were similar to Studies 1-4, and the correlation between actors' and partners' felt-loved during the family activity ( $r = .21$ ) was weaker. Inspection of the scatterplots (see OSM) indicate a fair representation of couples experiencing relatively similar or different levels of felt-loved.

### **Primary Analyses: Dyadic Effects of Feeling Loved on Destructive Behavior**

We nested felt-loved and destructive behavior within the four interactions to account for dependence across interactions (see OSF for data and syntax). We applied repeated-measures dyadic regression procedures (Kenny et al., 2006) to model the degree to which actors' felt-loved, partners' felt-loved, and actors'  $\times$  partners' felt-loved predicted actors' destructive behavior, and included the main and interaction effects of whether the type of interaction represented a conflict or non-conflict context (conflict interaction = -1; non-conflict interaction = 1) to test whether the effects differed across the two types of interaction contexts. Predictor variables were grand-mean centered.

As shown in Table 10, the actors'  $\times$  partners' felt-loved interaction on destructive behavior was significant (shown in bold). This effect did not differ across conflict and non-conflict interactions (see actors' felt-loved  $\times$  partners' felt-loved  $\times$  interaction type effect), providing support that the effects replicated within both types of interactions. As shown in Figure 8, a *Strong-Link/Mutual Felt-Unloved* pattern was evident. Actors' lower felt-loved predicted greater destructive behavior, but this actor effect was stronger when partners also

experienced lower felt-loved (solid line;  $b = -.19, t = -11.83, p < .001, r = .34$ ) than when partners' felt-loved was high (dashed line;  $b = -.06, t = 2.92, p = .004, r = .09$ ). Accordingly, actors whose felt-loved was low exhibited greater destructive behavior when partners' felt-loved was low compared to when partners' felt-loved was high (left side of figure;  $b = -.15, t = -9.60, p < .001, r = .28$ ). Actors whose felt-loved was high exhibited similarly low levels of destructive behavior across levels of partners' felt-loved (right side of figure;  $b = -.02, t = -1.09, p = .278, r = .03$ ). This dyadic pattern provides further evidence that partners' high felt-loved can buffer the effect of actors feeling unloved on destructive behavior (*strong link*), suggesting that higher actors' destructive behavior will most likely occur when both actors *and* partners feel unloved (*mutual felt-unloved*).

**Table 10. The Effects of Actors' and Partners' Felt-Loved on Actors' Destructive Behavior within Four Couple and Family Interactions (Study 5)**

Predictors	Actors' Destructive Behavior						
	<i>B</i>	<i>t</i>	95% CI		<i>p</i>	<i>r</i>	
			Low	High			
Intercept	1.44	44.53	1.377	1.504	<.001	.93	
Actors' Felt-Loved	-.12	-9.13	-.150	-.097	<.001	.19	
Partners' Felt-Loved	-.09	-6.43	-.113	-.060	<.001	.14	
Actors' × Partners' Felt-Loved	<b>.05</b>	<b>5.41</b>	<b>.029</b>	<b>.063</b>	<b>&lt;.001</b>	<b>.16</b>	
Interaction Type	-.09	-5.56	-.123	-.059	<.001	.19	
Actors' Felt-Loved × Interaction Type	.02	2.24	.003	.044	.025	.05	
Partners' Felt-Loved × Interaction Type	.01	.79	-.012	.028	.432	.02	
Actors' × Partners' Felt-Loved × Interaction Type	.01	1.01	-.007	.022	.314	.03	

*Note.* Interaction Type = type of interaction (conflict interaction = -1; non-conflict interaction = 1). The significant actors' × partners' felt-loved interaction effect shown in bold is presented in Figure 8. CI = confidence interval.

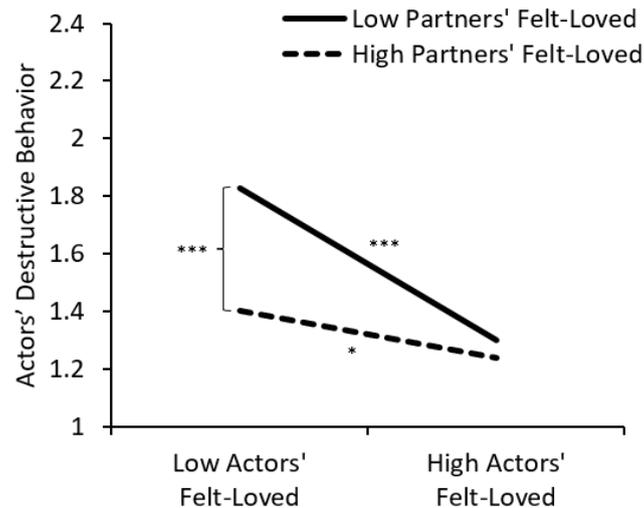


Figure 8. The effects of Actors' and Partners' Felt-Loved on Actors' Destructive Behavior within Four Sequential Couple and Family Interactions (Study 5).

Note. Low and high levels of Actors' and Partners' Felt-Loved represent 1 *SD* below and above the mean. The simple effects of the slopes and contrasts are marked \* $p < .05$  and \*\*\* $p < .001$ .

### Secondary Analyses: Role of Partners' Behavior

Partners' felt-loved predicted greater partners' loving behavior ( $b = .12, t = 8.70, p < .001, r = .19$ ), although this effect was stronger in non-conflict ( $b = .14, t = 7.94, p < .001, r = .18$ ) than conflict ( $b = .09, t = 5.50, p < .001, r = .13$ ) interactions (difference across type of interactions:  $b = .02, t = 2.21, p = .028, r = .05$ ). Additionally, a significant interaction between actors' felt-loved  $\times$  partners' loving behavior ( $b = .04, t = 2.96, p = .003, r = .07$ ) that did not differ across conflict and non-conflict interactions ( $b = -.00, t = -.25, p = .805, r = .01$ ) replicated the *Strong-Link/Mutual Felt-Unloved* pattern. Actors' lower felt-loved predicted greater destructive behavior when partners enacted lower ( $b = -.17, t = -10.22, p < .001, r = .22$ ), but not when partners enacted greater ( $b = -.10, t = -4.89, p < .001, r = .11$ ), loving behavior. However, when modelling all actor and partner effects to simultaneously test actors'  $\times$  partners' felt-loved and actors' felt-loved  $\times$  partners' loving behavior, the actors'  $\times$  partners' felt-loved interaction shown in Figure 8 remained significant ( $b = .04, t = 4.84, p < .001, r = .15$ ), whereas the actors' felt-loved  $\times$  partners' loving behavior interaction did not ( $b$

= .02,  $t = 1.49$ ,  $p = .138$ ,  $r = .03$ ). Thus, partners' loving behavior did not explain the strong-link effect of partners' felt-loved.<sup>14</sup>

### **Additional Analyses.**

***Chronic Feelings of Being Unloved.*** The interaction effect of actors'  $\times$  partners' attachment anxiety on destructive behavior was not significant, and controlling for the main and interaction effects of actors' and partners' attachment anxiety did not reduce the significance of the actors'  $\times$  partners' felt-loved interaction (see OSM).

***Spillover Effects Across Interactions.*** Gathering repeated assessments of felt-loved and destructive behavior across three or more sequential interactions allowed us to disambiguate *within-person* change across interactions from *between-person* differences that persist across interactions, which provides a stronger test to examine evidence of directional effects. *Between-person* effects in this context assess the effects of average levels of felt-loved across all interactions. Given that these between-person effects describe couples' situational experiences within a series of sequential interactions, the between-person actors'  $\times$  partners' felt-loved interaction is comparable to, and should replicate, the dyadic pattern shown in the primary analyses and in prior studies. More importantly, to examine evidence of directional effects, *within-person* spillover effects assess variations within individuals from a prior interaction (Interaction 1) to a subsequent interaction (Interaction 2). To test whether the effects occurred in our theorized causal direction, we modeled the degree to which actors' felt-loved, partners' felt-loved, and actors'  $\times$  partners' felt-loved in one interaction

---

<sup>14</sup> As detailed in the OSM, partners' felt-loved also predicted lower partners' *destructive* behavior, although this effect was stronger in conflict than non-conflict interactions. Moreover, a significant interaction emerged between actors' felt-loved  $\times$  partners' destructive behavior, but this interaction effect differed across conflict and non-conflict interactions. Decomposing this 3-way interaction revealed a *Strong-Link/Mutual Felt-Unloved* pattern in non-conflict but not in conflict interactions. Nonetheless, when modelling all actor and partner effects to simultaneously test actors'  $\times$  partners' felt-loved and actors' felt-loved  $\times$  partners' destructive behavior, the actors'  $\times$  partners' felt-loved interaction remained significant and did not differ across conflict interactions, and the actors' felt-loved  $\times$  partners' destructive behavior  $\times$  interaction type also remained significant. Mediated moderation analyses using the RMediation Package (Tofighi & MacKinnon, 2011) supported that, at least within non-conflict interactions, partners' lower destructive behavior may partially contribute to the strong-link effect of partners' felt-loved.

(Interaction 1) predicted actors' destructive behavior in a subsequent interaction (Interaction 2), while controlling for actors' destructive behavior in the prior interaction (Interaction 1).

**Table 11. Tests of Spillover Effects of Actors' and Partners' Felt-Loved on Actors' Subsequent Destructive Behavior across Four Sequential Couple and Family Interactions (Study 5)**

Predictors	Actors' Destructive Behavior in I2					
	<i>B</i>	<i>t</i>	95% CI		<i>p</i>	<i>r</i>
			Low	High		
Intercept	1.39	36.34	1.318	1.469	<.001	.86
Interaction Type	.06	2.04	.002	.115	.042	.08
<i>Between-Person Level</i>						
Actors' Felt-Loved	-.16	-6.76	-.212	-.116	<.001	.26
Partners' Felt-Loved	-.06	-2.33	-.103	-.009	.020	.10
Actors' × Partners' Felt-Loved	<b>.06</b>	<b>2.58</b>	<b>.013</b>	<b>.098</b>	<b>.010</b>	<b>.14</b>
Actors' Felt-Loved × Interaction Type	-.03	-1.90	-.063	.001	.058	.06
Partners' Felt-Loved × Interaction Type	.01	.69	-.020	.041	.490	.02
Actors' × Partners' Felt-Loved × Interaction Type	-.00	-.01	-.028	.028	.992	.00
<i>Within-Person Level</i>						
Actors' Destructive Behavior in I1	-.55	-14.06	-.625	-.472	<.001	.36
Actors' Felt-Loved in I1	-.10	-3.35	-.153	-.040	.001	.09
Partners' Felt-Loved in I1	-.08	-2.80	-.130	-.023	.005	.09
Actors' × Partners' Felt-Loved in I1	<b>.12</b>	<b>3.77</b>	<b>.057</b>	<b>.182</b>	<b>&lt;.001</b>	<b>.13</b>
Actors' Felt-Loved in I1 × Interaction Type	-.11	-3.57	-.167	-.049	<.001	.10
Partners' Felt-Loved in I1 × Interaction Type	-.03	-1.08	-.087	.025	.282	.03
Actors' × Partners' Felt-Loved in I1 × Interaction Type	<b>.11</b>	<b>3.75</b>	<b>.055</b>	<b>.175</b>	<b>&lt;.001</b>	<b>.14</b>

*Note.* The significant within-person actors' × partners' felt-loved interaction effect shown in bold is presented in Figure 9. Interaction Type = type of interaction (conflict interaction and thus spilled over into non-conflict interaction = -1; non-conflict interaction and thus spilled over into conflict interaction = 1). I1 = Prior interaction; I2 = Subsequent interaction. CI = confidence interval.

We included the main and interaction effects of whether the interaction involved couples' conflict and thus spilled over to a non-conflict interaction (i.e., couples' first conflict discussion to discussion of relationship strengths, and couples' second conflict discussion to family activity) or whether the interaction involved a non-conflict interaction and thus spilled over into couples' conflict discussions (i.e., couples' discussion of relationship strengths to couples' second conflict discussion). The between-person predictor variables (averages of

actors' and partners' felt-loved across interactions) were grand-mean centered, and the within-person predictor variables (actors' and partners' felt-loved within each interaction) were person-mean centered (Bolger & Laurenceau, 2013; see OSF for data and syntax).

As shown in the top of Table 11, the *between-person* actors'  $\times$  partners' felt-loved interaction was significant and replicated the *Strong-Link/Mutual Felt-Unloved* pattern shown in the primary analyses (see Figure 8) and in prior studies. Actors' lower felt-loved across interactions predicted greater destructive behavior, but this effect was stronger when partners also experienced lower felt-loved across interactions ( $b = -.23, t = -7.74, p < .001, r = .40$ ) than when partners' felt-loved was high across interactions ( $b = -.10, t = -2.64, p = .009, r = .15$ ). The results again suggest that, across a series of sequential interactions, partners with higher average levels of felt-loved can buffer the association between actors' lower average levels of felt-loved and greater destructive behavior.

More critically, as shown in the bottom of Table 11, the *within-person* actors'  $\times$  partners' felt-loved interaction on actors' subsequent destructive behavior was significant, but this spillover effect differed depending on whether the subsequent interaction involved a conflict or non-conflict interaction context. As shown in Figure 9, decomposing this three-way interaction revealed a *Strong-Link/Mutual Felt-Unloved* pattern when predicting subsequent destructive behavior in conflict interactions but not subsequent behavior in non-conflict interactions. When the subsequent interaction (Interaction 2) involved a conflict interaction, actors' lower felt-loved (Interaction 1) predicted greater subsequent destructive behavior when partners also experienced lower felt-loved (solid line;  $b = -.40, t = -4.56, p < .001, r = .15$ ), but not when partners' felt-loved was high (dashed line;  $b = -.00, t = -.08, p = .937, r = .00$ ). By contrast, when the subsequent interaction (Interaction 2) involved a non-conflict interaction, actors' lower felt-loved (Interaction 1) was not associated with subsequent destructive behavior, regardless of whether partners experienced low felt-loved

(solid line;  $b = .01$ ,  $t = .23$ ,  $p = .820$ ,  $r = .01$ ) or high felt-loved (dashed line;  $b = .02$ ,  $t = .37$ ,  $p = .712$ ,  $r = .01$ ). We also tested whether the effect might have occurred in the alternative causal direction by testing whether actors' felt-loved  $\times$  actors' destructive behavior predicted partners' felt-loved in a subsequent interaction, but this model did not converge.<sup>15</sup>

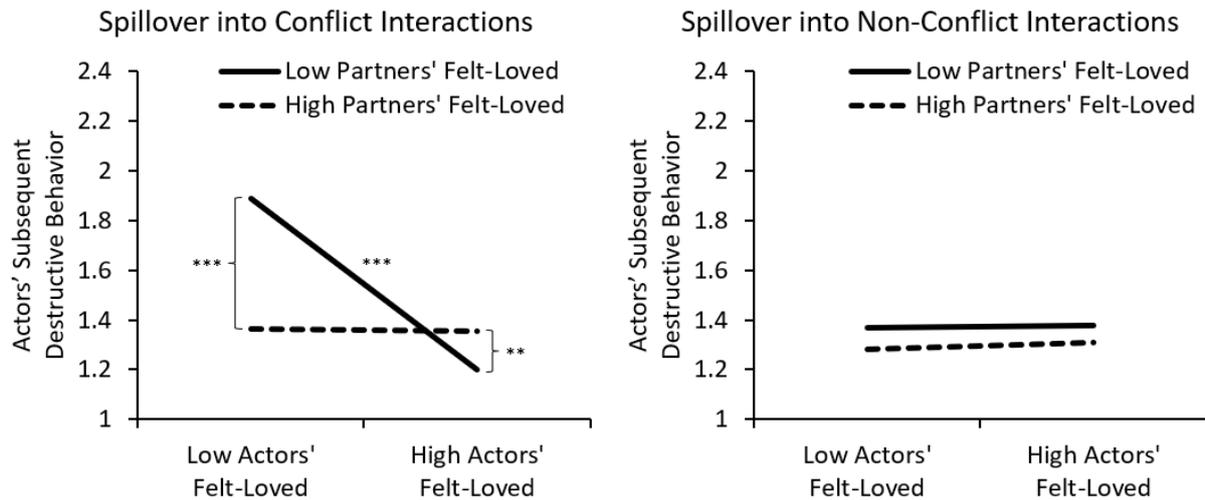


Figure 9. The Spillover effects of Actors' and Partners' Felt-Loved on Actors' Subsequent Destructive Behavior across Four Sequential Couple and Family Interactions (Study 5).

Note. Low and high levels of Actors' and Partners' Felt-Loved represent 1 SD below and above the mean. The simple effects of the slopes and contrasts are marked  $**p < .01$  and  $***p < .001$ .

## General Discussion

The present research challenges theoretical frameworks in relationship science to incorporate a dyadic approach to advance understanding of the nature and consequences of feeling loved. The findings indicate that actors' and partners' feelings of being loved combine

<sup>15</sup> Finally, we tested whether partners' loving or destructive behavior explained the strong-link within-person spillover effect of partners' high felt-loved (see OSM). The within-person actors' felt-loved  $\times$  partners' loving behavior interaction on actors' subsequent destructive behavior was not significant, regardless of interaction context. However, the within-person actors' felt-loved  $\times$  partners' destructive behavior interaction predicting actors' subsequent destructive behavior was significant, and like the strong-link spillover effect of partners' felt-loved, differed depending on interaction context. Decomposing this three-way interaction revealed a *Strong-Link/Mutual Felt-Unloved* pattern when predicting subsequent behavior in conflict interactions but not subsequent behavior in non-conflict interactions. Nonetheless, when modelling all actor and partner effects to simultaneously test actors'  $\times$  partners' felt-loved and actors' felt-loved  $\times$  partners' destructive behavior, the within-person actors'  $\times$  partners' felt-loved spillover effect shown in Figure 9 remained significant, whereas the within-person actors' felt-loved  $\times$  partners' destructive spillover effect did not. Thus, partners' loving or destructive behavior did not explain the strong-link spillover effect of partners' felt-loved.

to predict important relationship behaviors within relationship interactions. Five dyadic observational studies provided consistent evidence that a *Strong-Link/Mutual Felt-Unloved* dyadic pattern predicted whether actors behaved destructively during couples' relationship interactions. This dyadic pattern provided evidence that partners who feel loved can buffer against actors feeling unloved behaving more destructively (*strong link*), resulting in actors' destructive behavior most likely to occur when both actors and partners feel unloved (*mutual felt-unloved*). This dyadic pattern replicated in three supplemental daily sampling studies, and was not explained by partners' observed loving behavior or individual differences that capture actors' and partners' tendencies to feel (un)loved within relationships (attachment anxiety, self-esteem). Finally, providing some directional support for the *Strong-Link/Mutual Felt-Unloved* pattern, partners' felt-loved also appeared to buffer the association between actors feeling unloved in one interaction and actors' destructive behavior in subsequent conflict interactions (Studies 4 and 5). In the following sections, we outline how the present findings offer novel insights about the dyadic nature of feeling loved, consider how adopting this dyadic perspective could be applied to advance understanding of many fundamental relationship processes, and highlight several important methodological and practical implications along with directions for future research.

### **Understanding Love Requires a Dyadic Approach: Weak-link vs. Strong-link Patterns**

The interdependent nature of close relationships means that fully understanding most *relationship* processes will require assessing how both dyad members feel, think, and behave toward each other (Kelley, 1979; Kelley & Thibaut, 1978). A dyadic perspective is, thus, crucial to fully understand how important interpersonal experiences, such as love and feeling loved, determine key relationship outcomes. Feeling loved is an essential need within relationships and the feelings we assessed—feeling loved, cared for, accepted, valued, and understood—are identified as principal drivers of behavioral dynamics that shape relationship

outcomes (Murray et al., 2006; Simpson & Rholes, 2017; Reis, 2007, 2012). Yet, despite that the very nature of feeling loved involves relationship partners, prior theoretical and empirical treatments have primarily focused on how one person (*the actor*) feeling unloved can generate destructive behavior that has harmful implications for close relationships.

Our dyadic application to understanding the behavioral consequences of feeling (un)loved differentiated between two dyadic patterns. First, the few investigations examining dyadic patterns have typically illustrated *weak-link* effects suggesting that it only takes one person's lack of commitment (Attridge et al., 1995; Oriña et al., 2011), low gratitude (McNulty & Dugas, 2019), or emotional suppression (Sasaki et al., 2021) to undermine relationship satisfaction and stability. Similarly, either person feeling unloved could act as a weak link by prompting destructive behavior in challenging interactions, resulting in the best outcomes emerging when actors and partners mutually feel loved (Clark et al., 2019; Murray & Holmes, 2009; Reis & Clark, 2014). Second, however, alternative models suggest *strong-link* patterns can emerge: partners who feel loved may compensate for actors who feel unloved, thereby preventing destructive behavior. For example, prior research has shown that partners' expressions of affection, reassurance, and accommodation can reduce the distress and destructive responses typically exhibited by actors high in attachment anxiety (Arriaga et al., 2018; Overall et al., 2022). The worst behavioral outcomes may therefore arise when actors and partners mutually feel unloved as supported by the poor outcomes arising when both actors and partners behave destructively (Christensen & Heavey, 1990; Gottman, 1998).

The results across five behavioral observation studies unequivocally supported a *Strong-Link/Mutual Felt-Unloved* dyadic pattern, which indicates that partners who feel loved can buffer the link between actors feeling unloved and greater destructive behavior (*strong link*), resulting in actors' destructive behavior most likely to occur when both actors and partners feel unloved (*mutual felt-unloved*). These robust dyadic effects illustrate that

failing to adopt a dyadic approach may lead to erroneous conclusions or at minimum provide an incomplete picture of relationship phenomena. Even for well-established effects like that of actors feeling unloved predicting destructive behavior (Murray et al., 2006; Simpson & Rholes, 2017), a sole focus on actor effects may produce null or inconsistent effects because partners' feelings of being loved can buffer the effects of actors feeling unloved.

The results also advance prior demonstrations of strong-link patterns. Prior studies have assessed how partners' behavior (or perceptions of partners' behavior) may act as a strong link by buffering the effects of actors' chronic insecurity on poor outcomes, such as distress, dissatisfaction, and destructive behavior. By contrast, the present studies indicate that partners *feeling* loved can buffer the effects of actors *feeling* unloved within relationship interactions. Focusing on feelings of being loved is important because, regardless of how or why feelings of being (un)loved arise, actors' current feelings of being (un)loved are likely the strongest, most proximal predictor of their behavior within those interactions. To illustrate, these within-interaction feelings are theorized to be central in explaining why chronic insecurity disrupts constructive interactions (Murray et al., 2006; Simpson & Rholes, 2017). Accordingly, additional analyses demonstrated that the *Strong-Link/Mutual Felt-Unloved* patterns were independent of individual difference vulnerabilities in feeling (un)loved, including attachment anxiety and low self-esteem (also see Footnote 2).

Furthermore, it is not just people high in attachment anxiety or low self-esteem that can feel unloved and behave in destructive ways, and thus our results have broader implications for understanding the dynamics that emerge whenever feelings of being unloved arise in relationship interactions. Indeed, many additional factors can give rise to actors feeling (un)loved within interactions, such as partners' behavior or perceptions of partners' behavior (Lemay & Clark, 2008a; Reis et al., 2004). Yet, we extend prior research showing that observed or perceived partners' behavior can buffer insecure actors' negative outcomes

by showing consistent evidence of a strong-link pattern of partners' *feelings* of being loved, which was independent of partners' loving or destructive behavior. Additional analyses also illustrated that the strong-link pattern was independent of relationship satisfaction (see Footnote 2). We did not examine other factors that may contribute to feelings of being loved vs. unloved in the moment (e.g., stress, mood from prior social interactions, biased perceptions). Nonetheless, irrespective of the many reasons for why people may feel (un)loved in a given interaction, the current results highlight that actors' and partners' current *feelings* of being (un)loved likely combine to predict a critical relationship outcome: the degree to which actors' destructive behavior emerges in risky, challenging interactions.

Contrasting competing dyadic patterns not only advances understanding of the dyadic nature of felt-loved on destructive behavior, but also has implications for differentiating when a *Strong-Link/Mutual Unloved* versus *Weak-Link/Mutual Felt-Loved* pattern may emerge. Comparing the present findings to prior research on dyadic patterns highlights that one important context for understanding which pattern may emerge is whether within-situation versus global processes are the focus of investigation. A *Strong-Link/Mutual Felt-Unloved* pattern may be most likely to occur when examining within-situation processes. The present studies provide supporting evidence that partners' high felt-loved within a given interaction may protect against actors' destructive behavior when actors feel unloved within that interaction. Similarly, prior research supporting a strong-link pattern has shown that partners' loving behavior within threatening interactions can provide momentary reassurance that dissipates chronically insecure actors' distress and destructive responses within the interaction (Arriaga et al., 2018; Overall et al., 2022), and partners who accommodate, instead of responding with negativity or withdrawal, can help to de-escalate actors' immediate destructive responses (Christensen & Heavey, 1990; Gottman, 1998; Rusbult et al., 1991). Thus, if Pat continues to feel loved despite the risk of threatening interactions, Pat

may be able to be a strong link by buffering the degree to which Alex's in-the-moment feelings of being unloved lead to problematic dynamics within specific interactions.

*Strong-Link/Mutual Felt-Unloved* patterns within situations should have important implications for long-term relationship outcomes. By undermining conflict resolution and closeness, negative reciprocity and demand-withdraw erode relationship quality across time (Christensen & Heavey, 1990; Gottman, 1998). In contrast, by helping couples better navigate specific relationship challenges, partners' loving behavior (or perceived loving behavior) builds trust, satisfaction, and commitment (Wieselquist et al., 1999), even in chronically insecure individuals (e.g., Park et al., 2019), thereby creating a mutual cyclical growth process that promotes relationships over time (Wieselquist et al., 1999; also see Overall et al., 2022). Similarly, in the present studies, the strong-link pattern of partners' felt-loved may have important long-term implications, such as promoting reciprocal feelings and expressions of love, thereby fostering relationship growth and well-being.

Nonetheless, if within-interaction dyadic patterns become chronic, such as when Pat has to manage Alex's persistent feelings of being unloved across interactions, the ability or benefits of Pat being a strong link may dissipate (Joiner, 1994). Strong-link partners like Pat may grow weary and resentful over time (Lemay & Dudley, 2011), producing a switch from protecting relationships within challenging interactions (strong link) to being unable to sustain long-term relationship wellbeing on one's own (weak link). Indeed, in contrast to the within-situation dynamics examined in the present studies, a *Weak-Link/Mutual Felt-Loved* pattern may be most likely to occur when examining chronic, ongoing processes predicting broader, long-term relationship outcomes. The initial conceptualization of weak-link patterns, for example, focused on the role of commitment in predicting long-term relationship stability (Kelley & Thibault, 1978; Waller & Hill, 1951). In contrast to partners protecting relationships within specific interactions, one partner's higher commitment may have little

power to keep a less committed partner to remain in the relationship in the long term (Attridge et al., 1995). Other weak-link patterns have focused on general feelings of low gratitude (McNulty & Dugas, 2019) and habitual emotional suppression (Sasaki et al., 2021) that likely reflect ongoing, chronic processes that chip away at global relationship quality. Similarly, models emphasizing the importance of mutual love and responsiveness (Clark et al., 2019; Murray & Holmes, 2009; Reis & Clark, 2014) may be most relevant to dynamics that persist across time to damage global relationship sentiment.

In sum, Pat's high feeling of being loved in a given interaction may act as a strong link by protecting against Alex's destructive behavior when Alex feels unloved within that interaction. However, Pat's feelings of being loved may be less able to compensate for Alex's chronic feelings of being unloved undermining global relationship sentiment in the long term. Thus, relationships are likely to be most successful over time if both Alex and Pat generally feel loved, likely because both dyad members are more consistently responsive to each other in times of need, including any moment when one dyad member feels unloved. Integrating the present findings with our analysis of prior research, both dyad members may need to take turns to act as a strong link to sustain relationships in order to ensure that chronic differences in felt-loved do not create weak links that destabilize relationships over time. Future research examining both immediate and over-time dyadic patterns is needed to test our speculations.

### **Advances to the Understanding of Love: Measuring and Modeling Love in Context**

Our theoretical and empirical analysis of felt-loved within relationship interactions offers clarification about what love and feeling loved likely involves. Despite being a fundamental need within close relationships, there is currently no consensually agreed upon definition or measurement of feeling loved. We integrated core components identified by scholarly and lay conceptualizations of love (e.g., Hatfield & Walster, 1978; Fehr, 1988; Hendrick & Hendrick, 1986; Lee, 1977; Rubin, 1970; Sprecher and Fehr, 2005; Sternberg,

1986) with feelings identified as pivotal across key relationship theories (see Table 1; Clark et al., 2019; Murray et al., 2006; Reis, 2007) to characterize feeling loved as involving feeling cared for, accepted, valued, and understood. By identifying the feelings common across models, our integration illuminates core elements of what feeling loved ‘is’.

Our integrative approach also illustrates that feeling loved is central across seemingly distinct theoretical models that use different language to assess the same principal feelings. By identifying unified principles, the results are relevant and make advances to numerous areas in relationship science. The results emphasize that attachment, risk regulation, and perceived partner responsiveness theories specify many of the same processes and principles, and that these involve feelings that can be characterized as love given the substantial overlap with scholarly and lay conceptualizations of love. Moreover, our results show that a dyadic perspective is critical for all of these areas. Models of love, as well as attachment, risk regulation, and perceived partner responsiveness theories, need to extend a primary focus on actors’ feelings of love or being loved because partners’ feelings of being loved (or felt security, perceived regard, perceived partner responsiveness) will likely act a strong-link to buffer the destructive outcomes associated with actors feeling unloved (or low felt security, perceived regard, perceived partner responsiveness) within relationship interactions.

Our integration of models of love that focus on general sentiments and motivations with principal theories that emphasize within-situation feelings of being loved (see Table 1) also illustrate the value of measuring and modeling love or feeling loved within interactions. Although general feelings of love or being loved are important, current feelings play a key role in determining whether couples can navigate challenging relationship interactions and, in turn, likely sustain loving relationships more generally. Moreover, examining processes within couples’ interactions illustrated that (unexpectedly) partners’ *feelings* of being loved can play a more powerful role than partners’ loving behavior. We had theorized that one

reason for a strong-link pattern is that partners who feel more loved may enact greater loving behavior (see Figure 2). Yet, although there was some evidence that partners' felt-loved predicted greater loving behavior, a robust strong-link pattern did not emerge for partners' loving behavior and did not account for the strong-link pattern of partners' felt-loved.

Why might partners' *feelings* of being loved have positive buffering effects that are not explained by partners' loving behavior? We think partners' felt-loved could prompt a range of pro-relationship responses that are tailored to actors' idiosyncratic needs within the specific context. Specific partner behaviors, such as loving and kind behavior, are not always beneficial (McNulty & Fincham, 2012). Instead, there is growing evidence that the most effective partner behaviors are those that address the demands of the situation (McNulty, 2016). Partners who feel more loved may be more likely to express love when actors are highly distressed and need evidence of partners' commitment, but may convey their investment by expressing negative emotions or directly reasoning when needing to resolve serious conflicts (Overall & McNulty, 2017; Overall, 2018). Partners who feel more loved may also be more able to be responsive to actors' chronic love-related needs, including overt expressions of love for those who crave it versus autonomy-sensitive indirect expressions, such as giving space, for those who find closeness uncomfortable (Arriaga et al., 2018; Overall & Simpson, 2015). Furthermore, because partners who feel loved can put aside their own concerns to be focused on actors' needs, whichever way they respond may be perceived as more supportive and authentic (Lemay & Clark, 2008a). Thus, partners who feel loved may act as a strong link not because they consistently exhibit a specific type of pro-relationship response but because they can be other-focused and more effectively respond in ways that address actors' particular needs within the specific interaction.

Future research is required to test the idea that partners' felt-loved may facilitate responsive interactions that meet idiosyncratic contextually-relevant needs. Yet, even in the

absence of a clear mechanism, the present findings suggest that partners' felt-loved may have the power to help actors who feel unloved overcome the tendency to behave destructively, particularly during challenging interactions. These initial findings provide valuable directions for future research to adopt a dyadic perspective to understand and measure processes related to love and feeling loved in contexts in which love-related dynamics are likely to be crucial.

### **Caveats, Limitations, and Future Directions**

Our studies included examining felt-loved and observed behavior within 1,965 observed relationship interactions. This methodological focus has many strengths, including offering insight into naturally occurring dyadic processes across an array of contexts where feeling unloved and destructive behavior may emerge and have important relationship consequences. Yet, the correlational nature of the data precludes causal conclusions. Tests of spillover effects across sequential interactions provided some support for our theorized direction of effects. Partners' high feeling of beings of being loved buffered the negative association between actors feeling unloved in one interaction on actors' destructive behavior in a subsequent interaction, but only when the subsequent interaction involved a conflict discussion (Studies 4 and 5) and not when the subsequent interaction may have been less challenging (e.g., discussion of relationship strengths, family activity; Studies 3 and 5) and thus destructive behavior is less likely to arise. Future research could provide stronger causal evidence by combining the strengths of examining dynamics within couples' interactions with experimental interventions that facilitate partners' feeling of being loved. Future investigations also may illustrate reciprocal causal processes. We did not find support for an alternative directional account: actors who felt unloved but were able to inhibit destructive behavior did not predict partners feeling more loved in subsequent interactions. It remains possible, however, that partners' high feelings of being loved mitigate the destructive

behavior associated with actors feeling unloved (as our results suggest), and actors who feel unloved but do not engage in destructive behavior, in turn, promote partners feeling loved.

Additional research is also needed to identify the processes through which partners are able to continue to feel loved across the course of an interaction and thus show a strong-link pattern. For example, even if actors feel unloved and behave in destructive ways, partners may be able to sustain feelings of being loved across relationship interactions by making more forgiving attributions and seeking information reaffirming their beliefs about actors' general love for them (Lemay & Clark, 2008a; Lemay et al., 2007). Rather than narrowly focusing on actors' behavior within the specific interaction as an indicator of actors' love, partners who are able to maintain feelings of being loved may draw on knowledge of what makes them feel loved in their relationship more generally (Neff & Karney, 2005). Moreover, we theorized that partners' loving behavior did not explain the strong-link pattern because specific types of loving responses may not match actors' idiosyncratic contextually-relevant needs. Future examinations of the strengths that enable partners to sustain feelings of being loved despite actors feeling unloved, along with identifying how to capture the varied behavioral dynamics that likely underlie these buffering effects, will be valuable to isolate the mechanisms explaining the strong-link pattern of partners' felt-loved.

Further questions to be addressed involve the contexts and outcomes in which strong-link (or weak-link) patterns might occur. First, the present studies involved couples in different types of relationships (e.g., dating vs. married with children), but participants were on average relatively satisfied and committed and did not experience extreme drops in felt-loved even within challenging interactions. Couples who are distressed or facing chronic stressors may exhibit heightened self-protective defenses and have fewer resources to attend to each other's needs and feelings, possibly reducing partners' ability to maintain feelings of being loved and the degree to which partners feeling loved can mitigate actors' destructive

behavior. Instead, these couples may exhibit a weak-link pattern in which actors' heightened self-protective responses may be enough to derail any relationship-promotion efforts by their partner feeling loved. A weak-link pattern may also emerge when actors exhibit extreme forms of destructive behavior, such as violence and aggression, making it difficult, dangerous, and ultimately unhealthy for partners who feel loved to respond constructively.

Second, the strong-link pattern emerged within conflict discussions involving couples negotiating conflicting needs and preferences, discussions of relationship strengths that could create challenges if couples are unable to connect, identify and reciprocate positive aspects of their relationship, and family interactions that require couples to cooperate and facilitate each other's parenting. These interactions can all risk rejection and activate self-protective, destructive responses (Murray et al., 2006; Simpson & Rholes, 2017; Overall et al., 2022). However, results from directional tests suggest that the strong-link pattern may be strongest within particularly risky or challenging interactions. Partners' felt-loved buffered the link between actors feeling unloved and destructive behavior within subsequent conflict discussions (Studies 4 and 5), but not subsequent relationship strength discussions or family interactions (Studies 3 and 5), likely because conflict interactions are more threatening and pose more risk of actors behaving destructively. The strong link pattern may thus be weaker in interactions that pose less risk, such as when one dyad member discusses personal goals, stressors, or accomplishments, and thus there is less need for partners' felt-loved to buffer actors' feelings of being unloved and destructive behavior.

Third, the strong-link pattern may not occur across different outcomes. We focused on actors' destructive behavior within risky interactions because destructive behavior is an important outcome that principal theories emphasize should emerge from feeling unloved (Murray et al., 2006; Reis & Clark, 2013; Simpson & Rholes, 2017). The strong-link pattern, however, did not extend to actors' loving behavior (see Footnote 1), suggesting that although

partners' high feelings of being loved can buffer the link between actors feeling unloved and destructive behavior, partners' feelings of being loved is not enough to promote loving behavior among actors who feel unloved, perhaps particularly within risky interactions where self-protective concerns are amplified. Similarly, partners' high feelings of being loved within specific interactions may not be enough to promote actors' positive outcomes beyond the interaction, such as greater commitment and satisfaction, inclusion of the other in the self, and more general relationship-maintenance behaviors. As we speculated above, these broader positive outcomes may require that both actors and partners typically feel loved, and either actors or partners persistently feeling unloved may be enough to act as a weak link. Exploring whether different dyadic patterns might emerge when examining negative vs. positive long-term relationship outcomes is an important avenue for future research.

Finally, the present findings and ensuing future directions have consequential therapeutic implications. Relationship-based therapies often focus on alleviating individuals' feelings of being unloved in order to reduce self-protective, destructive behaviors (Johnson, 2004). Yet, the present results suggest that focusing on one's person's vulnerability and behavior overlooks the role of the other partner's feelings of being loved, which may act as a strong link to mitigate destructive behavior. Thus, it may be beneficial for both partners to attend to each other's feelings of being loved during important relationship interactions to recognize the potential for either partner to be a strong link. Therapists may also be able to help partners become strong links for each other by considering how feeling loved can be facilitated and expressed in the context of each person's specific needs. Leveraging either partner's feelings of being loved will likely better equip couples to successfully navigate challenging interactions in which feeling unloved and destructive behavior might arise.

## **Conclusion**

Feeling loved is central to how people respond during relationship interactions and thus whether relationships thrive. The present research represents the first investigation adopting a dyadic perspective to examine how both actors' and partners' feelings of being loved or unloved combine to predict destructive behavior within relationship interactions. The strong-link dyadic pattern across studies suggests that feeling loved need not be mutual within relationship interactions to mitigate destructive behavior. Instead, one partner feeling loved may act as a strong link by buffering the degree to which the other person feeling unloved behaves more destructively. The strong-link pattern highlights the dyadic nature and consequences of feeling loved. The need to assess dyadic combinations should be equally important for other fundamental relationship phenomena.

## References

- Alonso-Ferres, M., Righetti, F., Valor-Segura, I., & Expósito, F. (2021) How power affects emotional communication during relationships conflicts: The role of perceived partner responsiveness. *Social Psychological and Personality Science*, *12*, 1203-1215.  
<https://doi.org/10.1177/1948550621996496>
- Arriaga, X. B., Eller, J., Kumashiro, M., Rholes, W. S., & Simpson, J. A. (2020). Self-Efficacy and Declines Over Time in Attachment Anxiety During the Transition to Parenthood. *Social Psychological and Personality Science*, *12*(5), 658-666.  
<https://doi.org/10.1177/1948550620933411>
- Arriaga, X. B., Kumashiro, M., Simpson, J. A., & Overall, N. C. (2018). Revising Working Models Across Time: Relationship Situations That Enhance Attachment Security. *Personality and Social Psychology Review*, *22*(1), 71–96.  
<https://doi.org/10.1177/1088868317705257>
- Atkins, D. C., Baldwin, S. A., Zheng, C., Gallop, R. J., & Neighbors, C. (2013). A tutorial on count regression and zero-altered count models for longitudinal substance use data. *Psychology of Addictive Behaviors*, *27*(1), 166. <https://doi.org/10.1037/a0029508>
- Attridge, M., Berscheid, E., & Simpson, J. A. (1995). Predicting relationship stability from both partners versus one. *Journal of Personality and Social Psychology*, *69*(2), 254–268. <https://doi.org/10.1037/0022-3514.69.2.254>
- Ayduk, O., Downey, G., Testa, A., Yen, Y., & Shoda, Y. (1999). Does rejection elicit hostility in high rejection sensitive women? *Social Cognition*, *17*(2), 245-271.  
<https://doi.org/10.1521/soco.1999.17.2.245>
- Baumeister, R., & Leary, M. R. (1995). The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*(3), 497–529.

- Bolger, N., & Laurenceau, J-P. (2013). *Intensive longitudinal methods: An introduction to diary and experience sampling research*. Guilford.
- Cameron, L. D., & Overall, N. C. (2018). Suppression and expression as distinct emotion-regulation processes in daily interactions: Longitudinal and meta-analyses. *Emotion*, 18(4), 465. <https://doi.org/10.1037/emo0000334>
- Canevello, A., & Crocker, J. (2010). Creating good relationships: Responsiveness, relationship quality, and interpersonal goals. *Journal of Personality and Social Psychology*, 99(1), 78–106. <https://doi.org/10.1037/a0018186>
- Carnelley, K. B., & Rowe, A. C. (2007). Repeated priming of attachment security influences later views of self and relationships. *Personal Relationships*, 14(2), 307–320. <https://doi.org/10.1111/j.1475-6811.2007.00156.x>
- Cavallo, J. V., Murray, S. L., & Holmes, J. G. (2013). Regulating interpersonal risk. In J. A. Simpson & L. Campbell (Eds.), *Oxford handbook of close relationships* (pp. 116–136). Oxford University Press.
- Christensen, A., & Heavey, C. L. (1990). Gender and social structure in the demand/withdraw pattern of marital conflict. *Journal of Personality and Social Psychology*, 59(1), 73–81. <https://doi.org/10.1037/0022-3514.59.1.73>
- Clark, M. S., Hirsch, J. L., & Monin, J. K. (2019). Love Conceptualized as Mutual Communal Responsiveness. In R. J. Sternberg & K. Sternberg (Eds.), *The New Psychology of Love* (2nd ed., pp. 84–116). Cambridge University Press. <https://doi.org/10.1017/9781108658225.006>
- Cowan, P. A., & Cowan, C. P. (2002). Interventions as tests of family systems theories: Marital and family relationships in children's development and psychopathology. *Development and Psychopathology*, 14(4), 731–759. <https://doi.org/10.1017/S0954579402004054>

- Cranford, J. A., Shrout, P. E., Iida, M., Rafaeli, E., Yip, T., & Bolger, N. (2006). A procedure for evaluating sensitivity to within-person change: Can mood measures in diary studies detect change reliably? *Personality and Social Psychology Bulletin*, *32*(7), 917-929.
- Crasta, D., Rogge, R. D., Maniaci, M. R., & Reis, H. T. (2021). Toward an optimized measure of perceived partner responsiveness: Development and validation of the perceived responsiveness and insensitivity scale. *Psychological Assessment*, *33*(4), 338–355. <https://doi.org/10.1037/pas0000986>
- Cross, E. J., Overall, N. C., Low, R. S. T., & Henderson, A. M. E. (2021). Relationship problems, agreement and bias in perceptions of partners' parental responsiveness, and family functioning. *Journal of Family Psychology*, *35*(4), 510–522. <https://doi.org/10.1037/fam0000812>
- Cross, E.J., Overall, N.C., Low, R.S.T., & McNulty, J.K. (2019). Men's hostile sexism, biased perceptions of low power, and aggression toward intimate partners. *Journal of Personality and Social Psychology*, *117*(2), 338-363. <https://doi.org/10.1037/pspi0000167>
- Dawson, J. F. (2014). Moderation in Management Research: What, Why, When, and How. *Journal of Business and Psychology*, *29*(1), 1–19. <https://doi.org/10.1007/s10869-013-9308-7>
- Faure, R., Righetti, F., Larson, G., Cuellar, M. F., Koutsoumpis, A., Zwicker, M., & Hofmann, W. (2021). When and for Whom Implicit Partner Evaluations Predict Forgiveness. *Social Psychological and Personality Science*, *12*(5), 708–718. <https://doi.org/10.1177/1948550620936476>
- Faure, R., Righetti, F., Seibel, M., & Hofmann, W. (2018). Speech Is Silver, Nonverbal Behavior Is Gold: How Implicit Partner Evaluations Affect Dyadic Interactions in

Close Relationships. *Psychological Science*, 29(11), 1731–1741.

<https://doi.org/10.1177/0956797618785899>

Fehr, B. (1988). Prototype analysis of the concepts of love and commitment. *Journal of Personality and Social Psychology*, 55(4), 557–579. <https://doi.org/10.1037/0022-3514.55.4.557>

Fehr, B., & Russell, J. A. (1991). The concept of love viewed from a prototype perspective. *Journal of personality and social psychology*, 60(3), 425. <https://doi.org/10.1037/0022-3514.60.3.425>

Finch, WH, Bolin, JE, & Kelley, K (2014). *Multilevel Modeling Using R*. CRC Press.

Fraley, R. C., & Shaver, P. R. (2000). Adult romantic attachment: Theoretical developments, emerging controversies, and unanswered questions. *Review of general psychology*, 4(2), 132-154. <https://doi.org/10.1037/1089-2680.4.2.132>

Fredrickson, B. L. (2016). Love: Positivity resonance as a fresh, evidence-based perspective on an age-old topic. In L. F. Barrett, M. Lewis, & J. M. Haviland-Jones (Eds.), *Handbook of emotions* (pp. 847– 858). Guilford Press.

Gable, S. L., Gonzaga, G. C., & Strachman, A. (2006). Will you be there for me when things go right? Supportive responses to positive event disclosures. *Journal of Personality and Social Psychology*, 91(5), 904–917. <https://doi.org/10.1037/0022-3514.91.5.904>

Gable, S. L., Gosnell, C. L., Maisel, N. C., & Strachman, A. (2012). Safely testing the alarm: close others' responses to personal positive events. *Journal of personality and social psychology*, 103(6), 963. <https://doi.org/10.1037/a0029488>

Gaucher, D., Wood, J. V., Stinson, D. A., Forest, A. L., Holmes, J. G., & Logel, C. (2012). Perceived regard explains self-esteem differences in expressivity. *Personality and Social Psychology Bulletin*, 38(9), 1144-1156. <https://doi.org/10.1177/0146167212445790>

- Gillath, O., Hart, J., Nofhle, E. E., & Stockdale, G. D. (2009). Development and validation of a state adult attachment measure (SAAM). *Journal of Research in Personality*, 43(3), 362-373. <https://doi.org/10.1016/j.jrp.2008.12.009>
- Gottman, J. M. (1998). Psychology and the Study of Marital Processes. *Annual Review of Psychology*, 49(1), 169–197. <https://doi.org/10.1146/annurev.psych.49.1.169>
- Hatfield, E. & Walster, G. W. (1978). *A new look at love*. University Press of America.
- Hendrick, C., & Hendrick, S. (1986). A theory and method of love. *Journal of Personality and Social Psychology*, 50(2), 392–402. <https://doi.org/10.1037/0022-3514.50.2.392>
- Heyman, R.E. (2001). Observation of couple conflicts: Clinical assessment applications, stubborn truths, and shaky foundations. *Psychological Assessment*, 13(1), 5-35. <https://doi.org/10.1037/1040-3590.13.1.5>
- Jakubiak, B. K., & Feeney, B. C. (2016). A Sense of Security: Touch Promotes State Attachment Security. *Social Psychological and Personality Science*, 7(7), 745–753. <https://doi.org/10.1177/1948550616646427>
- Jayamaha, S. D., Antonellis, C., & Overall, N. C. (2016). Attachment insecurity and inducing guilt to produce desired change in romantic partners: Attachment insecurity and partner regulation. *Personal Relationships*, 23(2), 311–338. <https://doi.org/10.1111/pere.12128>
- Joiner, T. E. (1994). Contagious depression: Existence, specificity to depressed symptoms, and the role of reassurance seeking. *Journal of Personality and Social Psychology*, 67(2), 287–296. <https://doi.org/10.1037/0022-3514.67.2.287>
- Johnson, S. (2004). *The Practice of Emotionally Focused Couple Therapy* (1st/2nd ed.). Brunner-Routledge.

- Kanter, J. B., Lavner, J. A., Lannin, D. G., Hilgard, J., & Monk, J. K. (2022). Does couple communication predict later relationship quality and dissolution? A meta-analysis. *Journal of Marriage and Family*, 84(2), 533-551. <https://doi-org/10.1111/jomf.12804>
- Kelley, H. H. (1979). *Personal Relationships: Their Structures and Processes*. Erlbaum.
- Kelley, H. H., & Thibaut, J. W. (1978). *Interpersonal Relations: A Theory of Interdependence*. John Wiley.
- Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis*. Guilford.
- Kerig, P. K., & Baucom, D. H. (Eds.). (2004). *Couple Observational Coding Systems*. Lawrence Erlbaum Associates, Inc.
- Kim, K. J., Feeney, B. C., & Jakubiak, B. K. (2018). Touch reduces romantic jealousy in the anxiously attached. *Journal of Social and Personal Relationships*, 35(7), 1019–1041. <https://doi.org/10.1177/0265407517702012>
- Kohn, J. L., Rholes, S. W., Simpson, J. A., Martin III, A. M., Tran, S., & Wilson, C. L. (2012). Changes in marital satisfaction across the transition to parenthood: The role of adult attachment orientations. *Personality and Social Psychology Bulletin*, 38(11), 1506-1522. <https://doi.org/10.1177/0146167212454548>
- Laurenceau, J.-P., Barrett, L. F., & Pietromonaco, P. R. (1998). Intimacy as an interpersonal process: The importance of self-disclosure, partner disclosure, and perceived partner responsiveness in interpersonal exchanges. *Journal of Personality and Social Psychology*, 74(5), 1238–1251. <https://doi.org/10.1037/0022-3514.74.5.1238>
- Lee, J. A. (1977). A typology of styles of loving. *Personality and Social Psychology Bulletin*, 3(2), 173–182. <https://doi.org/10.1177/014616727700300204>
- Lemay, E. P., & Clark, M. S. (2008a). How the head liberates the heart: Projection of communal responsiveness guides relationship promotion. *Journal of Personality and Social Psychology*, 94(4), 647–671. <https://doi.org/10.1037/0022-3514.94.4.647>

- Lemay, E. P., & Clark, M. S. (2008b). "Walking on eggshells": How expressing relationship insecurities perpetuates them. *Journal of Personality and Social Psychology*, 95(2), 420–441. <https://doi.org/10.1037/0022-3514.95.2.420>
- Lemay, E. P., Clark, M. S., & Feeney, B. C. (2007). Projection of responsiveness to needs and the construction of satisfying communal relationships. *Journal of Personality and Social Psychology*, 92(5), 834–853. <https://doi.org/10.1037/0022-3514.92.5.834>
- Lemay, E. P., & Dudley, K. L. (2011). Caution: Fragile! Regulating the interpersonal security of chronically insecure partners. *Journal of Personality and Social Psychology*, 100(4), 681–702. <https://doi.org/10.1037/a0021655>
- Lemay, E. P., Overall, N. C., & Clark, M. S. (2012). Experiences and interpersonal consequences of hurt feelings and anger. *Journal of Personality and Social Psychology*, 103(6), 982–1006. <https://doi.org/10.1037/a0030064>
- Lipsey, M. W., & Wilson, D. B. (2001). Applied Social Research Methods Series: Vol. 49. *Practical Meta-Analysis*. Sage.
- Low, R. S. T., Overall, N. C., Cross, E. J., & Henderson, A. M. E. (2019). Emotion regulation, conflict resolution, and spillover on subsequent family functioning. *Emotion*, 19(7), 1162–1182. <https://doi.org/10.1037/emo0000519>
- Luke, M. A., Sedikides, C., & Carnelley, K. (2012). Your Love Lifts Me Higher! The Energizing Quality of Secure Relationships. *Personality and Social Psychology Bulletin*, 38(6), 721–733. <https://doi.org/10.1177/0146167211436117>
- Maisel, N. C., Gable, S. L., & Strachman, A. (2008). Responsive behaviors in good times and in bad. *Personal Relationships*, 15(3), 317–338. <https://doi.org/10.1111/j.1475-6811.2008.00201.x>
- McNulty, J. K. (2016). Chapter Five—Highlighting the Contextual Nature of Interpersonal Relationships. In J. M. Olson & M. P. Zanna (Eds.), *Advances in Experimental Social*

*Psychology* (Vol. 54, pp. 247–315). Academic Press.

<https://doi.org/10.1016/bs.aesp.2016.02.003>

McNulty, J. K., & Dugas, A. (2019). A dyadic perspective on gratitude sheds light on both its benefits and its costs: Evidence that low gratitude acts as a “weak link”. *Journal of Family Psychology*, *33*(7), 876–881. <https://doi.org/10.1037/fam0000533>

McNulty, J. K., & Fincham, F. D. (2012). Beyond positive psychology? Toward a contextual view of psychological processes and well-being. *The American psychologist*, *67*(2), 101–110. <https://doi.org/10.1037/a0024572>

McNulty, J. K., Olson, M. A., Meltzer, A. L., & Shaffer, M. J. (2013). Though they may be unaware, newlyweds implicitly know whether their marriage will be satisfying. *Science*, *342*(6162), 1119–1120. <https://doi.org/10.1126/science.1243140>

Mikulincer, M., & Shaver, P. R. (2007). *Attachment in Adulthood: Structure, Dynamics, and Change*. Guilford Press.

Muller, D., Judd, C. M., & Yzerbyt, V. Y. (2005). When moderation is mediated and mediation is moderated. *Journal of personality and social psychology*, *89*(6), 852. <https://doi.org/10.1037/0022-3514.89.6.852>

Murray, S. L., Bellavia, G. M., Rose, P., & Griffin, D. W. (2003a). Once hurt, twice hurtful: How perceived regard regulates daily marital interactions. *Journal of Personality and Social Psychology*, *84*(1), 126–147. <https://doi.org/10.1037/0022-3514.84.1.126>

Murray, S. L., Griffin, D. W., Rose, P., & Bellavia, G. M. (2003b). Calibrating the sociometer: The relational contingencies of self-esteem. *Journal of Personality and Social Psychology*, *85*(1), 63–84. <https://doi.org/10.1037/0022-3514.85.1.63>

Murray, S. L., & Holmes, J. G. (2009). The architecture of interdependent minds: A motivation-management theory of mutual responsiveness. *Psychological Review*, *116*(4), 908–928. <https://doi.org/10.1037/a0017015>

- Murray, S. L., Holmes, J. G., & Collins, N. L. (2006). Optimizing assurance: The risk regulation system in relationships. *Psychological Bulletin*, *132*(5), 641–666. <https://doi.org/10.1037/0033-2909.132.5.641>
- Murray, S. L., Holmes, J. G., & Griffin, D. W. (2000). Self-esteem and the quest for felt security: how perceived regard regulates attachment processes. *Journal of personality and social psychology*, *78*(3), 478. <https://doi.org/10.1037/0022-3514.78.3.478>
- Murray, S. L., Holmes, J. G., MacDonald, G., & Ellsworth, P. C. (1998). Through the looking glass darkly? When self-doubts turn into relationship insecurities. *Journal of Personality and Social Psychology*, *75*(6), 1459–1480. <https://doi.org/10.1037/0022-3514.75.6.1459>
- Murray, S. L., Rose, P., Holmes, J. G., Derrick, J., Podchaski, E. J., Bellavia, G., & Griffin, D. W. (2005). Putting the partner within reach: a dyadic perspective on felt security in close relationships. *Journal of Personality and Social Psychology*, *88*(2), 327. <https://doi.org/10.1037/0022-3514.88.2.327>
- Murray, S. L., Rose, P., Bellavia, G. M., Holmes, J. G., & Kusche, A. G. (2002). When rejection stings: how self-esteem constrains relationship-enhancement processes. *Journal of personality and social psychology*, *83*(3), 556-573. <https://doi.org/10.1037/0022-3514.83.3.556>
- Neff, L. A., & Karney, B. R. (2005). To Know You Is to Love You: The Implications of Global Adoration and Specific Accuracy for Marital Relationships. *Journal of Personality and Social Psychology*, *88*(3), 480–497. <https://doi.org/10.1037/0022-3514.88.3.480>
- Notarius, C. I., Benson, P. R., Sloane, D., Vanzetti, N. A., & et al. (1989). Exploring the interface between perception and behavior: An analysis of marital interaction in distressed and nondistressed couples. *Behavioral Assessment*, *11*(1), 39–64.

- Oriña, M. M., Collins, W. A., Simpson, J. A., Salvatore, J. E., Haydon, K. C., & Kim, J. S. (2011). Developmental and Dyadic Perspectives on Commitment in Adult Romantic Relationships. *Psychological Science*, 22(7), 908–915.  
<https://doi.org/10.1177/0956797611410573>
- Otero, M. C., Wells, J. L., Chen, K.-H., Brown, C. L., Connelly, D. E., Levenson, R. W., & Fredrickson, B. L. (2020). Behavioral indices of positivity resonance associated with long-term marital satisfaction. *Emotion*, 20(7), 1225–1233.  
<https://doi.org/10.1037/emo0000634>
- Overall, N. C. (2018). Does Partners' Negative-Direct Communication During Conflict Help Sustain Perceived Commitment and Relationship Quality Across Time? *Social Psychological and Personality Science*, 9(4), 481–492.  
<https://doi.org/10.1177/1948550617712030>
- Overall, N. C. (2020). Behavioral variability reduces the harmful longitudinal effects of partners' negative-direct behavior on relationship problems. *Journal of Personality and Social Psychology*, 119(5), 1057–1085. <https://doi.org/10.1037/pspi0000231>
- Overall, N. C., Fletcher, G. J. O., Simpson, J. A., & Fillo, J. (2015). Attachment insecurity, biased perceptions of romantic partners' negative emotions, and hostile relationship behavior. *Journal of Personality and Social Psychology*, 108(5), 730–749.  
<https://doi.org/10.1037/a0038987>
- Overall, N. C., Fletcher, G. J. O., Simpson, J. A., & Sibley, C. G. (2009). Regulating partners in intimate relationships: The costs and benefits of different communication strategies. *Journal of Personality and Social Psychology*, 96(3), 620–639.  
<https://doi.org/10.1037/a0012961>
- Overall, N. C., Girme, Y. U., Lemay, E. P., & Hammond, M. D. (2014). Attachment anxiety and reactions to relationship threat: The benefits and costs of inducing guilt in

romantic partners. *Journal of Personality and Social Psychology*, 106(2), 235–256.

<https://doi.org/10.1037/a0034371>

Overall, N. C., Maner, J. K., Hammond, M. D., Cross, E. J., Chang, V. T., Low, R. S. T., Girme, Y. U., Jayamaha, S. D., Reid, C. J., & Sasaki, E. (2022). Actor and partner power are distinct and have differential effects on social behavior. *Journal of Personality and Social Psychology*. Advance online publication.

<http://dx.doi.org/10.1037/pspi0000398>

Overall, N. C., & McNulty, J. K. (2017). What type of communication during conflict is beneficial for intimate relationships? *Current Opinion in Psychology*, 13, 1–5.

<https://doi.org/10.1016/j.copsyc.2016.03.002>

Overall, N.C., Pietromonaco, P.R. & Simpson, J.A. (2022). Buffering and spillover of adult attachment insecurity in couple and family relationships. *Nature Reviews Psychology*, 1, 101-111. <https://doi.org/10.1038/s44159-021-00011-1>

Overall, N. C., & Sibley, C. G. (2009a). Attachment and dependence regulation within daily interactions with romantic partners. *Personal Relationships*, 16(2), 239–261.

<https://doi.org/10.1111/j.1475-6811.2009.01221.x>

Overall, N. C., & Sibley, C. G. (2009b). When Rejection Sensitivity Matters: Regulating Dependence Within Daily Interactions With Family and Friends. *Personality and Social Psychology Bulletin*, 35(8), 1057–1070.

<https://doi.org/10.1177/0146167209336754>

Overall, N. C., & Sibley, C. G. (2010). Convergent and discriminant validity of the Accommodation Scale: Evidence from three diary studies. *Personality and Individual Differences*, 48(3), 299-304. <https://doi.org/10.1016/j.paid.2009.10.020>

Overall, N. C., Simpson, J. A., & Struthers, H. (2013). Buffering attachment-related avoidance: Softening emotional and behavioral defenses during conflict discussions.

*Journal of Personality and Social Psychology*, 104(5), 854–871.

<https://doi.org/10.1037/a0031798>

- Park, Y., Impett, E. A., MacDonald, G., & Lemay, E. P., Jr. (2019). Saying “thank you”: Partners’ expressions of gratitude protect relationship satisfaction and commitment from the harmful effects of attachment insecurity. *Journal of Personality and Social Psychology*, 117(4), 773–806. <https://doi.org/10.1037/pspi0000178>
- Reis, H. T. (2007). Steps toward the ripening of relationship science. *Personal Relationships*, 14(1), 1–23. <https://doi.org/10.1111/j.1475-6811.2006.00139.x>
- Reis, H. T. (2012). Perceived partner responsiveness as an organizing theme for the study of relationships and well-being. In L. Campbell & T. J. Loving (Eds.), *Interdisciplinary research on close relationships: The case for integration*. (pp. 27–52). American Psychological Association. <https://doi.org/10.1037/13486-002>
- Reis, H.T. & Clark, M.S. (2014). Responsiveness. In J. Simpson & L. Campbell (Eds.) *Handbook of Close Relationships*. Oxford University Press.
- Reis, H. T., Clark, M. S., & Holmes, J. G. (2004). Perceived Partner Responsiveness as an Organizing Construct in the Study of Intimacy and Closeness. In D. J. Mashek & A. P. Aron (Eds.), *Handbook of closeness and intimacy* (pp. 201–225). Lawrence Erlbaum Associates Publishers.
- Reis, H. T., Maniaci, M. R., & Rogge, R. D. (2014). The expression of compassionate love in everyday compassionate acts. *Journal of Social and Personal Relationships*, 31, 652-677. <https://doi.org/10.1177/0265407513507214>
- Reis, H. T., Maniaci, M. R., & Rogge, R. D. (2017). Compassionate acts and everyday emotional well-being among newlyweds. *Emotion*, 17, 751-763. <https://doi.org/10.1037/emo0000281>

- Rholes, W. S., Simpson, J. A., & Oriña, M. M. (1999). Attachment and anger in an anxiety-provoking situation. *Journal of Personality and Social Psychology*, 76(6), 940–957. <https://doi.org/10.1037/0022-3514.76.6.940>
- Righetti, F., Balliet, D., Visserman, M. L., & Hofmann, W. (2015a). Trust and the suppression of emotions during sacrifice in close relationships. *Social Cognition*, 33, 505-519. <https://doi.org/10.1521/soco.2015.33.5.505>
- Righetti, F., Gere, J., Visserman, M. L., Hofmann, W., & Van Lange, P. A. M. (2016). The burden of empathy: Partners' response to divergence of interests in daily life. *Emotion*, 16, 684-690. <https://doi.org/10.1037/emo0000163>
- Righetti, F., Luchies, L. B., Van Gils, S., Slotter, E. B., Witcher, B., & Kumashiro (2015b). The prosocial vs. proself power holder: How power influences sacrifice in romantic relationships. *Personality and Social Psychology Bulletin*, 41, 779–790. <https://doi.org/10.1177/0146167215579054>
- Righetti, F., Schneider, I., Ferrier, Spiridonova, Xiang & Impett, E. (2020). The bittersweet taste of sacrifice: Consequences for ambivalence and mixed reactions. *Journal of Experimental Psychology: General*, 149, 1950-1968. <https://doi.org/10.1037/xge0000750>
- Righetti, F. & Visserman, M. (2018). I gave too much: Low self-esteem and the regret of sacrifices. *Social Psychological and Personality Science*, 9, 453-460. <https://doi.org/10.1177/1948550617707019>
- Rosenthal, R., & Rosnow, R. L. (2007). *Essentials of behavioral research: Methods and data analysis* (3rd ed.). McGraw-Hill.
- Ruan, Y., Reis, H. T., Clark, M. S., Hirsch, J. L., & Bink, B. D. (2020). Can I tell you how I feel? Perceived partner responsiveness encourages emotional expression. *Emotion*, 20(3), 329–342. <https://doi.org/10.1037/emo0000650>

- Rubin, Z. (1970). Measurement of romantic love. *Journal of Personality and Social Psychology, 16*(2), 265–273. <https://doi.org/10.1037/h0029841>
- Rusbult, C. E., Verette, J., Whitney, G. A., Slovik, L. F., & et al. (1991). Accommodation processes in close relationships: Theory and preliminary empirical evidence. *Journal of Personality and Social Psychology, 60*(1), 53–78. <https://doi.org/10.1037/0022-3514.60.1.53>
- Ryan, R. M., & Deci, E. L. (2000). Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being. *American Psychologist, 55*(1), 68–78. <https://doi.org/10.1037/0003-066X.55.1.68>
- Sasaki, E., & Overall, N. (2020). A Dyadic Perspective of Felt Security: Does Partners' Security Buffer the Effects of Actors' Insecurity on Daily Commitment? *International Journal of Environmental Research and Public Health, 17*(20), 7411. <https://doi.org/10.3390/ijerph17207411>
- Sasaki, E., & Overall, N. (2021). Partners' withdrawal when actors behave destructively: Implications for perceptions of partners' responsiveness and relationship satisfaction. *Personality and Social Psychology Bulletin, 47*(2), 307–323. <https://doi.org/10.1177/0146167220926820>
- Sasaki, E., Overall, N. C., Chang, V. T., & Low, R. S. T. (2021). A dyadic perspective of expressive suppression: Own or partner suppression weakens relationships. *Emotion*. Advance online publication. <https://doi.org/10.1037/emo0000978>
- Schoppe-Sullivan, S. J. (2017). Coparenting Coding Manual: New Parents Project (version April 2017).
- Schoppe, S. J., Mangelsdorf, S. C., & Frosch, C. A. (2001). Coparenting, family process, and family structure: Implications for preschoolers' externalizing behavior problems.

*Journal of Family Psychology*, 15(3), 526–545. <https://doi.org/10.1037/0893-3200.15.3.526>

Sillars, A., & Overall, N.C. (2016). Coding observed interaction. In D. Canary & A. VanLear (Eds.), *Researching Interactive Communication Behavior: A Sourcebook of Methods and Measures* (pp. 199-215). Sage.

Simpson, J. A. (1990). Influence of attachment styles on romantic relationships. *Journal of personality and social psychology*, 59(5), 971. <https://doi.org/10.1037/0022-3514.59.5.971>

Simpson, J. A., & Rholes, W. S. (2017). Adult attachment, stress, and romantic relationships. *Current Opinion in Psychology*, 13, 19–24. <https://doi.org/10.1016/j.copsyc.2016.04.006>

Simpson, J. A., Rholes, W. S., & Phillips, D. (1996). Conflict in close relationships: An attachment perspective. *Journal of Personality and Social Psychology*, 71(5), 899–914. <https://doi.org/10.1037/0022-3514.71.5.899>

Sprecher, S., & Fehr, B. (2005). Compassionate love for close others and humanity. *Journal of social and personal relationships*, 22(5), 629-651. <https://doi.org/10.1177/0265407505056439>

Steck, L., Levitan, D., McLane, D., & Kelley, H. H. (1982). Care, need, and conceptions of love. *Journal of Personality and Social Psychology*, 43(3), 481. <https://doi.org/10.1037/0022-3514.43.3.481>

Sternberg, R. J. (1997). Construct validation of a triangular love scale. *European Journal of Social Psychology*, 27(3), 313–335.

Sternberg, R. J. (1986). A triangular theory of love. *Psychological Review*, 93(2), 119–135. <https://doi.org/10.1037/0033-295X.93.2.119>

- Thomson, R. A., Overall, N. C., Cameron, L. D., & Low, R. S. T. (2018). Perceived regard, expressive suppression during conflict, and conflict resolution. *Journal of Family Psychology, 32*(6), 722–732. <https://doi.org/10.1037/fam0000429>
- Tofighi, D., & MacKinnon, D. P. (2011). RMediation: An R package for mediation analysis confidence intervals. *Behavior research methods, 43*(3), 692-700. <https://doi.org/10.3758/s13428-011-0076-x>
- Tran, S., & Simpson, J. A. (2009). Prorelationship maintenance behaviors: The joint roles of attachment and commitment. *Journal of Personality and Social Psychology, 97*(4), 685–698. <https://doi.org/10.1037/a0016418>
- Visserman, M. L., Impett, E. A., Righetti, F., Muise, A., Keltner, D., & Van Lange, P. A. M. (2019). To “see” is to feel grateful? A quasi-signal detection analysis of romantic partners’ sacrifices. *Social Psychological and Personality Science, 10*, 317-325. <https://doi.org/10.1177/1948550618757599>
- Visserman, M. L., Righetti, F., Kumashiro, M., & Van Lange, P. A. M. (2017). Me or us? Self-control promotes a healthy balance between personal and relationship concerns. *Social Psychological and Personality Science, 8*, 55-65. <https://doi.org/10.1177/1948550616662121>
- Visserman, M. L., Righetti, F., Impett, E. A., Keltner, D., & Van Lange, P. A. M. (2018). It’s the motive that counts: Perceived sacrifice motives and gratitude in romantic relationships. *Emotion, 18*, 625-637. <https://doi.org/10.1037/emo0000344>
- Visserman, M. L., Righetti, F., Impett, E. A., Muise, A., Joel, S., & Van Lange, P. A. M. (2021). Taking stock of reality: Biased perceptions of the costs of romantic partners’ sacrifices. *Social Psychological and Personality Science, 12*, 54-62. <https://doi.org/10.1177/1948550619896671>

- Von Culin, K. R., Hirsch, J. L., & Clark, M. S. (2018). Willingness to express emotion depends upon perceiving partner care. *Cognition and Emotion*, 32(3), 641-650. <https://doi.org/10.1080/02699931.2017.1331906>
- Waller, W. W., & Hill, R. (1951). *The family, a dynamic interpretation*. Dryden Press.
- Weiss, R.L., & Heymen, R.E. (2004). Couples observational research: An impertinent, critical overview. In P.K. Kerig and D.H. Baucom (Eds.), *Couple Observational Coding Systems* (pp. 11-25). Lawrence Erlbaum.
- Wieselquist, J., Rusbult, C. E., Foster, C. A., & Agnew, C. R. (1999). Commitment, pro-relationship behavior, and trust in close relationships. *Journal of Personality and Social Psychology*, 25(5), 942-966. <https://doi.org/10.1037%2F0022-3514.77.5.942>
- Zoppolat, G., Visserman, M. L., & Righetti, F. (2020). A nice surprise: Sacrifice expectations and partner appreciation in romantic relationships. *Journal of Social and Personal Relationships*, 37(2), 450-466. <https://doi.org/10.1177/0265407519867145>