



# Mate-retention behaviors mediate the association between spouses' attachment insecurity and subsequent partner satisfaction

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## ARTICLE INFO

### Keywords:

Adult attachment insecurity  
Mate retention  
Marital satisfaction  
Relationships

## ABSTRACT

Partner defection for attractive alternatives is a notable threat to relationships. Intimates' attachment insecurity likely influences the behaviors they engage in to combat this threat. Whereas attachment anxiety is likely positively associated with mate-retention frequency, attachment avoidance is likely negatively associated with mate-retention frequency. Moreover, given the partner-directed nature of mate-retention behaviors, such behaviors may subsequently impact intimates' partners. We examined these possibilities in one cross-sectional study of young adults and one dyadic, 3-year longitudinal study of newlywed couples. We also explored potential sex differences in each of these associations. Across both studies, men's and women's attachment anxiety was positively associated with their cost-inflicting mate retention whereas their attachment avoidance was negatively associated with their benefit-provisioning mate retention. Study 2 further demonstrated that the partners of more (versus less) anxiously attached people experienced declines in marital satisfaction over time that was due, in part, to being the target of more frequent cost-inflicting behaviors (though these effects only trended toward significance among wives), and the partners of more (versus less) avoidantly attached people experienced increases in marital satisfaction over time that was due, in part, to being the target of fewer cost-inflicting behaviors. Implications and future directions of research are discussed.

## 1. Introduction

Relational threats are ubiquitous and can have dire consequences for long-term relationships. Alternative romantic partners are one particularly notable threat because they attract attention away from people's ongoing relationships (Kelley & Thibaut, 1978; Rusbult, 1983), which can have negative implications for those relationships (e.g., infidelity, dissolution; McNulty, Meltzer, Makhanova, & Maner, 2018; Miller, 1997). Intimates are thus likely highly motivated to mitigate the pervasive threat of partner defection for such alternative partners. Nevertheless, people differ in the extent to which they interpret and perceive relationship threats—due at least in part to their working mental attachment models. According to attachment theory (Mikulincer & Shaver, 2003; Mikulincer, Shaver, & Pereg, 2003), relationship threats activate people's working mental attachment models that influence their subsequent behaviors. Attachment theory characterizes these working models as two continuous dimensions: attachment anxiety (or hyperactivation of the working attachment model that results in over-perceiving threats such as romantic rivals) and attachment avoidance (or deactivation of the working attachment model that results in under-perceiving or ignoring threats such as romantic rivals;

see Brennan, Clark, & Shaver, 1998; Fraley & Waller, 1998). Accordingly, individuals high (versus low) in attachment anxiety may engage in more behaviors aimed at partner retention whereas individuals high (versus low) in attachment avoidance may engage in fewer behaviors aimed at partner retention—and each of these tendencies may impact their partners. The goal of the current research was to explore these possibilities.

### 1.1. Intimates' attachment insecurity and corresponding relationship-maintenance behaviors

The hyperactivating strategies associated with attachment anxiety predispose intimates higher (versus lower) in attachment anxiety to experience greater emotional distress in their relationships (Campbell, Simpson, Boldry, & Kashy, 2005; Collins, 1996), which influences their relationship behaviors (Collins, 1996; Collins & Feeney, 2000; Simpson, Rholes, & Phillips, 1996; for a review, see Li & Chan, 2012). Notably, many of these behaviors are harmful to relationships. Intimates higher (versus lower) in attachment anxiety, for example, experience more frequent relationship conflict and interact more negatively with their partners (Collins, 1996; Simpson et al., 1996; for a review, see Li &

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<https://doi.org/10.1016/j.paid.2019.109534>

Received 17 June 2019; Received in revised form 24 July 2019; Accepted 25 July 2019

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Chan, 2012). Interestingly, however, they also frequently engage in beneficial relationship behaviors such as more frequent self-disclosure and support seeking that positively impacts their partners' satisfaction (Brennan & Shaver, 1995). Likewise, intimates higher in attachment anxiety engage in more constructive and fewer destructive relationship behaviors (Birnbaum, Reis, Mikulincer, Gillath, & Orpaz, 2006; but also see, Collins & Feeney, 2000; Li & Chan, 2012; Tran & Simpson, 2009).

In contrast, the deactivating strategies associated with attachment avoidance predispose intimates higher (versus lower) in attachment avoidance to either not perceive or refrain from reacting emotionally to relational threats. Such muted reactions hinder those intimates from perceiving the need to respond to such threats, which results in less frequent negative *and* positive relationship processes (Mikulincer & Shaver, 2003; also see Collins, 1996; Collins, Cooper, Albino, & Allard, 2002; Collins & Feeney, 2000; Simpson, Rholes, & Nelligan, 1992; Simpson et al., 1996). Indeed, intimates higher (versus lower) in attachment avoidance provide less partner support (Simpson et al., 1992; Simpson, Rholes, Oriña, & Grich, 2002), display less warmth (Simpson et al., 1996), perform fewer constructive, pro-relationship behaviors (e.g., affection, disclosure; Collins et al., 2002; Tran & Simpson, 2009), and are less responsive (Collins & Feeney, 2000; Feeney & Collins, 2001; for a review, see Li & Chan, 2012).

Given attachment anxiety predisposes individuals to frequently over-perceive relationship threats such as partner defection (Mikulincer & Shaver, 2003), intimates high in attachment anxiety may be particularly likely to engage in both negative *and* positive behaviors aimed at retaining their partners. Conversely, given attachment avoidance predisposes individuals to disregard relationship threats such as partner defection (Mikulincer & Shaver, 2003), intimates high in attachment avoidance may be particularly unlikely to engage in either negative *or* positive behaviors aimed at retaining their partners. Providing support for these possibilities, two independent studies have demonstrated that attachment insecurity is indeed associated with mate-retention behaviors (Barbaro, Pham, Shackelford, & Zeigler-Hill, 2016; Barbaro, Sela, Atari, Shackelford, & Zeigler-Hill, 2019). Specifically, these studies demonstrated that attachment anxiety is positively associated with cost-inflicting mate retention *and* benefit-provisioning mate retention whereas attachment avoidance is negatively associated with cost-inflicting mate retention (though this effect was not robust across both studies) *and* benefit-provisioning mate retention. Cost-inflicting mate retention, as its name implies, refers to partner-directed behaviors (e.g., monitoring, controlling, partner derogation) that aim to lower partner self-esteem and perceived social support, thereby decreasing the partner's perceived ability to obtain an alternative partner (see Buss & Shackelford, 1997; Miner, Starratt, & Shackelford, 2009). Benefit-provisioning mate retention, in contrast, refers to partner-directed behaviors (e.g., gift giving and public displays of affection) that aim to increase the value of the individual performing the behaviors, thereby decreasing the partner's perceived ability to obtain an alternative partner superior to his or her current partner.

### 1.2. Intimates' attachment insecurity may impact their partners' relationship outcomes through their mate retention

Given the partner-directed nature of mate retention, intimates' attachment insecurity may harm or benefit their relationships to the extent that such behaviors influence their partners' satisfaction. Indeed, previous research has demonstrated that intimates' attachment insecurity is associated with partner-directed relationship behaviors that influence those partners' relationship satisfaction (Brennan & Shaver, 1995; Collins et al., 2002; Overall, Girme, Lemay, & Hammond, 2014; Tan, Overall, & Taylor, 2012). For example, intimates higher (versus lower) in attachment anxiety exhibit more hurt feelings that induce greater guilt and lower their partners' subsequent relationship satisfaction (Overall et al., 2014), but also seek out more physical closeness with their partners that increases their partners' relationship

satisfaction (Brennan & Shaver, 1995). Intimates higher (versus lower) in attachment avoidance, in contrast, perform fewer pro-relationship behaviors (e.g., showing affection, self-disclosure; Collins et al., 2002) and avoid physical closeness with their partners (Brennan & Shaver, 1995), each of which is associated with lower partner satisfaction. We are unaware, however, of any research that has directly examined the extent to which intimates' attachment insecurity influences their partners' subsequent satisfaction through their mate-retention behaviors.

Of note, it is possible that the positive implications of intimates' benefit-provisioning mate retention "wash out" the negative implications of intimates' cost-inflicting mate retention, and thus, partners of intimates higher (versus lower) in attachment anxiety may be no more or less satisfied with their relationships. Nevertheless, other work has demonstrated that bad is stronger than good (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001) and thus it is possible that partners of intimates higher (versus lower) in attachment anxiety are less satisfied with their relationships, at least in part, because they endure cost-inflicting behaviors, regardless of whether they also receive benefit-provisioning behaviors. The partners of intimates higher (versus lower) in attachment avoidance, in contrast, incur fewer partner-directed costs but also fewer partner-directed benefits (Barbaro et al., 2016, 2019) that may either be unassociated with those partners' satisfaction or negatively impact those partners' satisfaction (to the extent that the costs of their less frequent benefits outweigh the benefits of their less frequent costs). The goal of the current research was to test these possibilities.

### 1.3. Exploring sex differences

It is also worth noting that previous research examining the associations between attachment insecurity and mate retention has demonstrated (somewhat inconsistent) sex-differentiated associations. In one study, women's (but not men's) attachment anxiety was positively associated with their benefit-provisioning behaviors (Barbaro et al., 2019). In another study, both men's and women's attachment anxiety was positively associated with their cost-inflicting behaviors, but the association emerged more strongly among men (Barbaro et al., 2016). Given the emergent yet inconsistent nature of these sex differences, we aimed to additionally explore such sex-differentiated associations in the current research but made no a priori predictions.

### 1.4. Overview of the current studies

We conducted two studies that examined the associations between intimates' attachment insecurity and their mate-retention behaviors, as well as the extent to which such behaviors mediate the association between intimates' attachment insecurity and their partners' subsequent relationship satisfaction (Study 2). In Study 1, a large sample of undergraduate students completed measures of attachment insecurity and mate retention. In Study 2, a sample of newlywed couples completed measures of attachment insecurity, mate retention, and marital satisfaction at the start of their marriages; then, at approximately 6-month intervals, spouses again completed measures of mate retention (for a total of four follow-up assessments spanning the first two and one-half years of marriage) and marital satisfaction (for a total of five follow-up assessments spanning the first three years of marriage).

## 2. Study 1

Study 1 aimed to examine the extent to which attachment anxiety and attachment avoidance uniquely predict cost-inflicting and benefit-provisioning mate retention. Although other empirical evidence has demonstrated that attachment anxiety is associated with more frequent mate retention and attachment avoidance is associated with less frequent mate retention (Barbaro et al., 2016, 2019), we are unaware of any research that has examined the extent to which each facet of

attachment *uniquely* predicts each type of mate retention. Given that both facets of attachment insecurity are positively correlated (Del Giudice, 2011; Sibley, Fischer, & Liu, 2005) and both facets of mate retention are positively correlated (Barbaro et al., 2019), it is possible that only one facet of attachment insecurity and one facet of mate retention are driving previously demonstrated associations (see Barbaro et al., 2016, 2019). To explore these unique associations, we recruited undergraduates to complete measures assessing (a) attachment insecurity and (b) mate retention in romantic relationships. We then examined the extent to which each facet of attachment insecurity independently predicted their cost-inflicting and benefit-provisioning mate retention.

## 2.1. Participants, procedure, and measures

We recruited 342 undergraduates from a large, southeastern university to participate in an online study. We a priori excluded 10 participants who failed to complete the attachment-insecurity measure, and two additional participants who failed to complete the mate-retention measure. Additionally, given the aim of examining relationship-specific behaviors, we a priori excluded three participants who reported never having been in a romantic relationship. Thus, our final sample was comprised of 327 participants (251 women). Of note, an a priori power analysis indicated that we needed at least 301 participants to detect the smallest effect reported in prior research (effect-size  $r = 0.16$ ; Barbaro et al., 2016).

Participants in our final sample reported a mean age of 19.90 ( $SD = 1.48$ ; range = 18–28). The sample was relatively diverse; 66.1% of participants self-identified as White, 20.2% of participants self-identified as Latino/a, 8.9% of participants self-identified as African American, 2.1% of participants self-identified as Asian, and 2.7% of participants self-identified as another race/ethnicity. Moreover, 180 (55%) participants reported they were currently involved in a romantic relationship (169 reported opposite-sex partners, 11 reported same-sex partners) that, on average, had been ongoing for 19.04 ( $SD = 17.50$ ) months. The remaining 147 single participants reported that their longest prior relationship (141 reported opposite-sex partners, five reported same-sex partners, and one reported an opposite-gender partner), on average, lasted 13.27 ( $SD = 11.58$ ) months.

Upon registering for the study, we directed participants to Qualtrics.com, where they provided consent and then completed self-report measures of attachment insecurity and mate retention. We compensated all participants with course credit.

### 2.1.1. Attachment insecurity

We assessed attachment insecurity using the revised version of the Experiences in Close Relationships scale (ECR-R; Fraley, Waller, & Brennan, 2000), which is a 36-item measure assessing attachment anxiety (assessed with 18 statements) and attachment avoidance (assessed with 18 statements). Participants indicated the extent to which they disagreed or agreed with each statement using a 7-point scale. After reverse scoring the necessary items, we averaged items comprising each

**Table 1**  
Descriptive statistics for and correlations among independent variables in Study 1.

|   | (1)    | (2)   | (3)    | (4) | <i>M</i> | <i>SD</i> | $\alpha$ |
|---|--------|-------|--------|-----|----------|-----------|----------|
| (1) Attachment anxiety                  | –      |       |        |     | 3.26     | 1.33      | 0.95     |
| (2) Attachment avoidance                | .40*** | –     |        |     | 3.13     | 1.19      | 0.94     |
| (3) Cost-inflicting mate retention      | .38*** | .13*  | –      |     | 0.58     | 0.43      | 0.90     |
| (4) Benefit-provisioning mate retention | .06    | –.22* | .48*** | –   | 1.41     | 0.48      | 0.85     |

\*  $p < .05$ .

\*\*\*  $p < .001$ .

subscale to create separate indices of attachment anxiety and avoidance; higher values reflect greater attachment insecurity.

### 2.1.2. Mate retention

We assessed mate-retention behaviors using the Mate Retention Inventory-Short Form (MRI-SF; Buss, Shackelford, & McKibbin, 2008). Specifically, participants reported the frequency with which they performed 38 mate-retention behaviors, using a 4-point scale (0 = “Never performed this act;” 3 = “Often performed this act”). Partnered participants reported their mate retention in their current relationships whereas single participants reported their mate retention in their longest prior relationship. Following procedures outlined by Miner et al. (2009), we categorized these 38 items into two subscales: benefit-provisioning behaviors (16 items; e.g., “displayed greater affection for my partner”) and cost-inflicting behaviors (22 items; e.g., “became angry when my partner flirted too much”).<sup>1</sup> We averaged items comprising each subscale; higher scores reflect more frequent mate retention.

## 2.2. Results

### 2.2.1. Descriptive statistics and preliminary analyses

We first examined the descriptive statistics for and correlations among our independent variables (see Table 1). A few results are worth highlighting. First, most people were relatively securely attached (given the low average scores of attachment insecurity), though there was substantial variability in insecure attachment. Moreover, *t*-tests demonstrated men and women reported similar levels of attachment anxiety,  $t(325) = -1.52$ ,  $p = .130$ , and avoidance,  $t(325) = 0.731$ ,  $p = .465$ , though single participants reported higher attachment anxiety ( $M = 3.65$ ,  $SD = 1.17$ ) and avoidance ( $M = 3.60$ ,  $SD = 1.00$ ) than did partnered participants (anxiety:  $M = 2.95$ ,  $SD = 1.37$ ; avoidance:  $M = 2.75$ ,  $SD = 1.19$ ),  $t(325) = 9.85$ ,  $p < .001$ , effect-size  $r = 0.48$  and  $t(325) = 10.84$ ,  $p < .001$ , effect-size  $r = 0.52$ , respectively. It is also worth noting that, consistent with prior research (Del Giudice, 2011; Sibley et al., 2005), attachment anxiety and avoidance were positively associated, supporting our a priori decision to examine the extent to which each is uniquely associated with mate retention.

Second, participants reported engaging in relatively few cost-inflicting and benefit-provisioning mate-retention behaviors (given the low average mate retention scores), though on average they engaged in fewer cost-inflicting than benefit-provisioning behaviors,  $t(326) = 32.60$ ,  $p < .001$ , effect-size  $r = 0.87$ . Although men and women reported similar frequencies of cost-inflicting behaviors,  $t(325) = 0.93$ ,  $p = .355$ , men reported more benefit-provisioning behaviors ( $M = 1.52$ ,  $SD = 0.47$ ) than did women ( $M = 1.38$ ,  $SD = 0.47$ ),  $t(325) = 2.26$ ,  $p = .025$ , effect-size  $r = 0.12$ . Partnered and single participants reported similar mate retention (cost-inflicting:  $t(325) = -1.64$ ,  $p = .102$ ; benefit-provisioning:  $t(325) = -0.11$ ,  $p = .915$ ). Moreover, both types of mate retention were positively associated, supporting our a priori decision to examine the extent to which each is uniquely associated with attachment insecurity.

Finally, consistent with prior work (Barbaro et al., 2019), both attachment anxiety and avoidance were positively associated with cost-inflicting mate retention whereas attachment avoidance was negatively associated with benefit-provisioning mate retention. Inconsistent with prior work (Barbaro et al., 2019), however, attachment anxiety was

<sup>1</sup> Cost-inflicting mate retention can be further divided into three categories (i.e., direct guarding, intersexual negative inducements, intrasexual negative inducements) and benefit-provisioning mate retention can be further divided into two categories (i.e., positive inducements, public signals of possession; see Miner et al., 2009). Results were largely similar when we used these five categories rather than the two broader subscales [see Supplementary Material (SM)].

**Table 2**

Associations between attachment anxiety, attachment avoidance, cost-inflicting mate retention, and benefit-provisioning mate retention in Study 1.

|                            | Cost-inflicting MR |                   |          | Benefit-provisioning MR |                   |          |
|----------------------------|--------------------|-------------------|----------|-------------------------|-------------------|----------|
|                            | $\beta$            | CI <sub>95%</sub> | <i>r</i> | $\beta$                 | CI <sub>95%</sub> | <i>r</i> |
| Intercept                  | 0.574***           | (0.528: 0.620)    | –        | 1.435***                | (1.383: 1.487)    | –        |
| Sex                        | 0.004              | (–0.042: 0.050)   | 0.01     | 0.053*                  | (0.001: 0.105)    | 0.11     |
| Attachment anxiety         | 0.131***           | (0.087: 0.175)    | 0.32     | –0.052                  | (–0.118: 0.014)   | 0.09     |
| Attachment anxiety × sex   | –                  | –                 | –        | –0.073*                 | (–0.133: –0.013)  | 0.14     |
| Attachment avoidance       | 0.078**            | (0.026: 0.130)    | 0.16     | –0.135***               | (–0.183: –0.087)  | 0.30     |
| Attachment avoidance × sex | 0.048†             | (–0.001: 0.096)   | 0.11     | –                       | –                 | –        |
| Benefit-provisioning MR    | 0.219***           | (0.177: 0.261)    | 0.50     | –                       | –                 | –        |
| Cost-inflicting MR         | –                  | –                 | –        | 0.245***                | (0.197: 0.293)    | 0.50     |

Note. Sex was coded such that –1 = women and 1 = men. MR = mate retention. Effect-size *r* is reported.

† *p* < .10.

\* *p* < .05.

\*\* *p* < .01.

\*\*\* *p* < .001.

unassociated with benefit-provisioning mate retention.

### 2.2.2. Is attachment insecurity associated with mate retention?

To examine the unique associations between each facet of attachment insecurity and each type of mate retention, we conducted two regression analyses that simultaneously explored sex-differentiated effects. In the first analysis, we regressed participants' cost-inflicting mate retention onto their attachment anxiety (standardized), attachment avoidance (standardized), sex (coded such that –1 = Women, 1 = Men), and the Avoidance × Sex interaction,<sup>2</sup> controlling participants' benefit-provisioning mate retention.<sup>3</sup> Results of this analysis are presented in the left half of Table 2. As can be seen, regardless of participants' sex, attachment anxiety was positively associated with cost-inflicting mate retention. Moreover, the Avoidance × Sex interaction trended toward significance (see Fig. 1) such that attachment avoidance was positively associated with cost-inflicting mate retention among men,  $\beta = 0.13$ , CI<sub>95%</sub> [0.04: 0.21], *p* = .005, effect-size *r* = 0.16, but not among women,  $\beta = 0.03$ , CI<sub>95%</sub> [–0.02: 0.08], *p* = .206. Nevertheless, we did not predict this sex difference nor did it reach traditional significance; we thus recommend readers interpret it with caution.<sup>4</sup>

In the second analysis, we regressed participants' benefit-provisioning mate retention onto their attachment anxiety (standardized), attachment avoidance (standardized), sex, and the Anxiety × Sex interaction,<sup>5</sup> controlling their cost-inflicting mate retention.<sup>3</sup> Results of this analysis are presented in the right half of Table 2. As can be seen, regardless of participants' sex, attachment avoidance was negatively associated with benefit-provisioning mate retention. Moreover, the Anxiety × Sex interaction emerged as significant (see Fig. 2) such that attachment anxiety was negatively associated with benefit-provisioning mate retention among men,  $\beta = -0.13$ , CI<sub>95%</sub> [–0.24: –0.01], *p* = .026, effect-size *r* = 0.12, but not among women,  $\beta = 0.02$ , CI<sub>95%</sub> [–0.03: 0.07], *p* = .460.<sup>4</sup>

## 2.3. Discussion

Study 1 provided preliminary evidence that attachment anxiety and

<sup>2</sup> A preliminary analysis indicated the Anxiety × Sex interaction did not reach significance (*p* = .910) and thus we did not include it in our final model.

<sup>3</sup> Largely similar results emerged in analyses not controlling for the other type of mate retention (for details regarding these analyses, see the SM).

<sup>4</sup> We additionally explored whether attachment anxiety and avoidance interacted to predict mate retention with no a priori predictions; the interactions were not significant (*ps* ≥ .488).

<sup>5</sup> A preliminary analysis indicated the Avoidance × Sex interaction did not reach significant (*p* = .927) and thus we did not include it in our final model.

avoidance are uniquely associated with cost-inflicting and benefit-provisioning mate retention. Consistent with predictions and prior research (e.g., Barbaro et al., 2016, 2019), more (versus less) anxious individuals performed more frequent cost-inflicting behaviors and more (versus less) avoidant individuals performed fewer benefit-provisioning behaviors. Inconsistent with predictions and some prior research (Barbaro et al., 2016; but also see Barbaro et al., 2019), however, more avoidant men (but not women) performed more (versus fewer) cost-inflicting behaviors and more anxious men (but not women) performed fewer (versus more) benefit-provisioning behaviors.

## 3. Study 2

Study 2 aimed to replicate the findings of Study 1, and extend them in three notable ways. First, given the cross-sectional nature of Study 1 that provided a “snapshot” of the key associations, Study 2 utilized a longitudinal methodology, enabling us to examine the stability of intimates' mate retention over time. Moreover, Study 2 included reports of another negative partner-directed relationship behavior that is associated with attachment insecurity—psychological aggression, enabling us to examine whether attachment insecurity is uniquely associated with mate retention independent of other such partner-directed behaviors. Finally, Study 2 included reports from both partners enabling us to examine the unique impact of intimates' attachment insecurity and mate retention for their partners' subsequent satisfaction.

Specifically, Study 2 utilized a dyadic, 3-year longitudinal study to examine (a) the extent to which intimates' mate retention changes over time, (b) whether we could replicate the associations between attachment insecurity and mate retention from Study 1, (c) whether these associations emerge independent of psychological aggression, and (d) whether intimates' attachment insecurity impacts their partners' subsequent satisfaction through their mate retention.

### 3.1. Participants

Participants were 113 husbands and 108 wives (comprising 113 heterosexual newlywed couples) participating in a broader longitudinal study in Dallas, Texas, USA (four wives failed to complete the attachment-insecurity measure and one wife failed to complete all assessments of mate retention). A sensitivity analysis that accounted for the repeated assessments [Intraclass Correlation Coefficient = 0.69; see Snijders & Bosker, 2011] as well as the dyadic nature of the data, indicated that our effective sample size of 180 intimates allowed us to detect an effect as small as effect-size *r* = 0.21 with a power of 0.80, which was smaller than the key mate-retention effects demonstrated here. As part of the broader study goals, eligibility required that: (a) both couple members were not previously married, (b) couples had

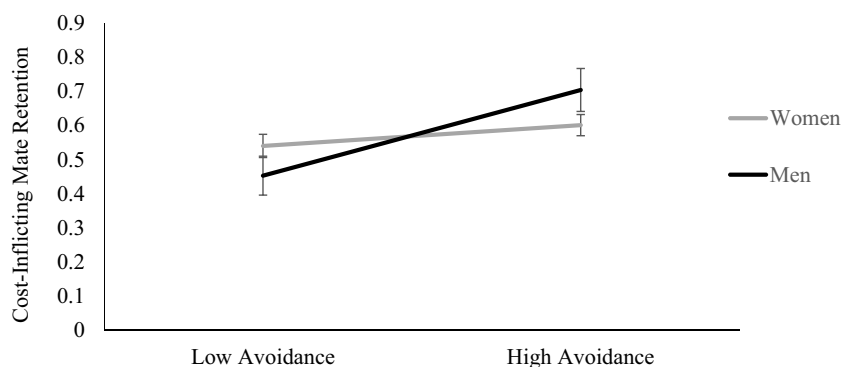


Fig. 1. Cost-inflicting behaviors for women and men with relatively low attachment avoidance (1 *SD* below the sample mean) and relatively high attachment avoidance (1 *SD* above the sample mean).

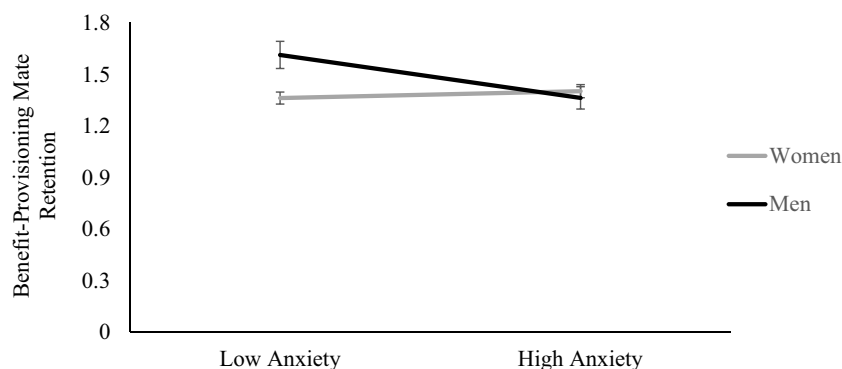


Fig. 2. Benefit-provisioning behaviors for women and men with relatively low attachment anxiety (1 *SD* below the mean) and relatively high attachment anxiety (1 *SD* above the mean).

been married less than four months, (c) both couple members were at least 18 years of age, and (d) both couple members spoke English (to ensure questionnaire comprehension). Data collection was initially planned for 12 months but was extended one additional month to increase sample size.

On average, husbands and wives at baseline were 28.06 (*SD* = 5.55) and 26.83 (*SD* = 4.81) years of age, respectively. Seventy-one percent of husbands and 53% of wives were employed full time; 13% of husbands and wives were full-time students. Husbands' and wives' reported mean income was \$42,990 (*SD* = \$47,162) and \$30,160 (*SD* = \$27,358) per year, respectively. The sample was relatively diverse; 48% of husbands and wives self-identified as Caucasian, 28% of husbands and 26% of wives self-identified as African American, 16% of husbands and 17% of wives self-identified as Latino/a, 3% of husbands and 5% of wives self-identified as Asian, and 4% of husbands and wives self-identified as another race/ethnicity (one husband and wife did not provide their race/ethnicity). Couples had been together an average of 39.61 (*SD* = 33.52) months prior to marriage and 23% had children.

### 3.2. Procedure and measures

We recruited participants via letters sent to couples who had recently applied for marriage licenses in Dallas County, Texas, USA. Given that a large number of couples registered for marriage licenses each month, we sent letters to 700 randomly selected couples each month. After enrolling in the study, participants received a packet of surveys by mail to complete at home and bring with them to a corresponding laboratory session or we emailed them a link to Qualtrics.com, where they completed surveys online prior to their session. Packets included a consent form approved by the local human-subjects review board; measures assessing attachment insecurity, mate retention, and marital satisfaction; additional measures beyond the

scope of these analyses; and a letter instructing spouses to complete their surveys independently of one another. We compensated couples \$100 for completing this baseline assessment and corresponding lab session.

At approximately 6-month intervals across the next three years (i.e., five follow-up assessments), we re-contacted couples and again mailed packets of surveys that included measures of mate retention and marital satisfaction, as well as a letter reminding spouses to complete their surveys independently. Each follow-up assessment resembled this format except for the final assessment, which did not include the mate-retention measure—in an effort to reduce participant burden and attrition, we drastically shortened the final assessment and thus we excluded this measure. Couples received \$30 for completing each follow-up assessment.

#### 3.2.1. Attachment insecurity

We assessed intimates' attachment insecurity at baseline using the same measure that we used in Study 1: the ECR-R (Fraley et al., 2000). Internal consistency was high (husbands' and wives' attachment anxiety:  $\alpha$ s  $\geq 0.94$ ; husbands' and wives' attachment avoidance:  $\alpha$ s  $\geq 0.93$ ).

#### 3.2.2. Mate retention

At baseline and the first four of the five follow-up assessments, we assessed participants' mate retention using the same measure that we used in Study 1: the MRI-SF (Buss et al., 2008). Specifically, participants recalled the frequency with which they engaged in 38 different behaviors across the prior 6-month period of time. Across all assessments, internal consistency was high (husbands' and wives' cost-inflicting behaviors:  $\alpha$ s  $\geq 0.86$ ; husbands' and wives' benefit-provisioning behaviors:  $\alpha$ s  $\geq 0.75$ ).<sup>1</sup>

3.2.3. Marital satisfaction

We assessed intimates' marital satisfaction at baseline and all follow-up assessments using three measures. The first measure was the Quality of Marriage Index (Norton, 1983), which is a 6-item measure assessing participants' agreement with general statements about their marriage. The second measure was a version of the semantic differential (Osgood, Suci, & Tannenbaum, 1957) that requires intimates to rate their marriage using 15 pairs of opposing adjectives (e.g., "Dissatisfied—Satisfied"). The third measure was the Kansas Marital Satisfaction Scale (Schumm et al., 1986), which is a 3-item measure assessing participants' agreement with general statements regarding the quality of their marriage. For each measure, we reverse scored appropriate items and averaged across all items; higher scores on each measure reflect greater satisfaction with the marriage. Across all assessments, internal consistency for each of these measures was high (husbands' and wives'  $\alpha$ s  $\geq$  0.92). Not surprisingly, all three measures were highly correlated (all  $r$ s  $\geq$  0.76), and thus, to be most comprehensive, and to minimize the likelihood that results would be specific to one measure, we created a composite marital satisfaction index for each participant by standardizing their scores across all assessments and averaging those standardized scores.

3.2.4. Covariate

Prior research has demonstrated that attachment insecurity is associated with another notable partner-directed relationship behavior: psychological aggression (Gormley & Lopez, 2010). To ensure that any associations between attachment insecurity and mate retention are independent of psychological aggression, we assessed intimates' psychological aggression at baseline and the first four of the five follow-up assessments using the verbal aggression subscale of the Conflict Tactics Scales (Straus, 1979) and controlled for it in additional analyses. Despite often being referred to as "verbal aggression," this 7-item subscale includes items that assess both verbal and non-verbal aggression and thus can be conceptualized as psychological aggression more generally (Straus, Hamby, Boney-McCoy, & Sugarman, 1996). Participants indicated the frequency with which they performed seven behaviors during the past six months using a 4-point scale (0 = "Never," 3 = "More [than twice]"). We averaged participants' responses across all items; higher scores reflect more frequent psychological aggression. One husband failed to complete all assessments of this measure. Internal consistency was somewhat low (across all assessments, husbands' and wives'  $\alpha$ s  $\geq$  0.65).

3.3. Results

3.3.1. Descriptive statistics and preliminary analyses

Descriptive statistics for and correlations among our baseline independent variables and covariate are presented in Table 3. A few

results are worth highlighting. Similar to Study 1, most people were relatively securely attached, though there was substantial variability in attachment insecurity. Second, also similar to Study 1, husbands and wives reported engaging in relatively few cost-inflicting and benefit-provisioning mate-retention behaviors; husbands and wives did not differ in the frequency with which they engaged in these behaviors [cost-inflicting:  $t(107) = 0.15, p = .880$ ; benefit-provisioning:  $t(107) = 1.63, p = .106$ ]. Also similar to Study 1, both husbands and wives engaged in fewer cost-inflicting behaviors than benefit-provisioning behaviors [husbands:  $t(112) = 25.10, p < .001$ , effect-size  $r = 0.92$ ; wives:  $t(107) = 26.16, p < .001$ , effect-size  $r = 0.93$ ]. Third, as in Study 1, attachment anxiety was positively associated with attachment avoidance, and intimates' cost-inflicting mate retention was positively associated with their benefit-provisioning mate retention. Fourth, both facets of husbands' and wives' attachment insecurity were positively associated with their cost-inflicting mate-retention behaviors (although the association between husbands' attachment avoidance and cost-inflicting mate retention only trended toward significance). Fifth, husbands' and wives' attachment avoidance (but not attachment anxiety) were negatively associated with their benefit-provisioning mate-retention behaviors. Finally, the frequency of husbands' cost-inflicting and benefit-provisioning mate retention was positively associated with the frequency of wives' cost-inflicting and benefit-provisioning mate-retention behaviors, respectively. It is worth noting, however, that these bivariate correlations do not account for shared variance across the two facets of attachment insecurity and the two types of mate retention.

3.3.2. Does intimates' mate retention change over time?

We first examined the trajectories of husbands' and wives' mate retention over time (see the SM for descriptive statistics at each assessment). Specifically, we used the mixed-model function in SPSS 25 to estimate two 2-level cross models that nested repeated observations within intimates and crossed intimates with time to account for the fact that both couple members completed all assessments at approximately the same time (see Kenny, Kashy, & Cook, 2006). In the first of these two models, we examined intimates' trajectories of cost-inflicting mate retention. Specifically, we regressed cost-inflicting mate retention onto husbands' and wives' Intercept and Time, where (a) Time represented each assessment and we coded baseline as 0 (thus Intercepts represented intimates' initial mate retention), (b) we additionally controlled for husbands' and wives' Benefit-Provisioning Mate Retention<sup>3</sup> to isolate the unique variance associated with cost-inflicting mate retention, (c) we allowed husbands' and wives' Intercept estimates to vary randomly (direct tests confirmed this was the best model; see Matuschek, Kliegl, Vasishth, Baayen, & Bates, 2017), and (d) we constrained husbands' and wives' parameters to be equal given direct contrasts revealed they did not significantly differ (Intercept:

**Table 3**  
Descriptive statistics for and correlations among baseline independent variables and covariates in Study 2.

|                              | (1)                      | (2)                      | (3)                      | (4)                      | (5)                      | Husbands          |      | Wives             |      |
|------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------|------|-------------------|------|
|                              |                          |                          |                          |                          |                          | M                 | SD   | M                 | SD   |
| (1) Attachment anxiety       | <b>.17<sup>†</sup></b>   | <b>.50<sup>***</sup></b> | <b>.27<sup>**</sup></b>  | <b>.04</b>               | <b>.30<sup>**</sup></b>  | 2.34 <sub>a</sub> | 1.23 | 2.46 <sub>a</sub> | 1.21 |
| (2) Attachment avoidance     | <b>.69<sup>***</sup></b> | <b>.14</b>               | <b>.21<sup>*</sup></b>   | <b>-.22<sup>*</sup></b>  | <b>.26<sup>**</sup></b>  | 2.29 <sub>a</sub> | 1.03 | 2.39 <sub>a</sub> | 1.03 |
| (3) Cost-inflicting MR       | <b>.48<sup>***</sup></b> | <b>.17<sup>†</sup></b>   | <b>.49<sup>***</sup></b> | <b>.39<sup>***</sup></b> | <b>.40<sup>***</sup></b> | 0.41 <sub>a</sub> | 0.45 | 0.41 <sub>a</sub> | 0.44 |
| (4) Benefit-provisioning MR  | <b>-.06</b>              | <b>-.31<sup>**</sup></b> | <b>.24<sup>*</sup></b>   | <b>.36<sup>***</sup></b> | <b>.10</b>               | 1.79 <sub>a</sub> | 0.49 | 1.69 <sub>a</sub> | 0.48 |
| (5) Psychological aggression | <b>.14</b>               | <b>.04</b>               | <b>.23<sup>*</sup></b>   | <b>.03</b>               | <b>.50<sup>***</sup></b> | 0.87 <sub>a</sub> | 0.69 | 1.15 <sub>b</sub> | 0.71 |

Note. MR = mate retention. Wives' correlations appear above the diagonal, husbands' correlations appear below the diagonal, and correlations between husbands and wives appear on the diagonal in bold. Different subscripts in the same row denote significantly different means.

<sup>†</sup>  $p < .10$ .  
<sup>\*</sup>  $p < .05$ .  
<sup>\*\*</sup>  $p < .01$ .  
<sup>\*\*\*</sup>  $p < .001$ .

$\beta = 0.003$ ,  $CI_{95\%} [-0.07: 0.07]$ ,  $t(148.91) = 0.07$ ,  $p = .942$ ; Time:  $\beta = -0.01$ ,  $CI_{95\%} [-0.03: 0.02]$ ,  $t(268.72) = -0.34$ ,  $p = .733$ ; Benefit-Provisioning Mate Retention:  $\beta = 0.01$ ,  $CI_{95\%} [-0.04: 0.06]$ ,  $t(387.37) = 0.36$ ,  $p = .721$ ). Results of this analysis demonstrated that intimates on average engaged in relatively infrequent cost-inflicting behaviors at the start of their marriages,  $\beta = 0.36$ ,  $CI_{95\%} [0.29: 0.42]$ ,  $t(120.63) = 10.90$ ,  $p < .001$ , effect-size  $r = 0.71$ , that did not change over time,  $\beta = 0.0001$ ,  $CI_{95\%} [-0.02: 0.02]$ ,  $t(258.34) = 0.01$ ,  $p = .995$ .

In the second of these two models, we examined intimates' trajectories of benefit-provisioning mate retention. Specifically, we regressed benefit-provisioning mate retention onto husbands' and wives' Intercept and Time, where (a) Time represented each assessment and we coded baseline as 0, (b) we additionally controlled for husbands' and wives' Cost-Inflicting Mate Retention<sup>3</sup> to isolate the unique variance associated with benefit-provisioning mate retention, (c) we allowed husbands' and wives' Intercept and Cost-Inflicting Mate Retention estimates to vary randomly (direct tests confirmed this was the best model; see Matuschek et al., 2017), and (d) we constrained husbands' and wives' parameters to be equal given direct contrasts revealed they did not significantly differ (Intercept:  $\beta = -0.07$ ,  $CI_{95\%} [-0.18: 0.02]$ ,  $t(150.60) = -1.57$ ,  $p = .116$ ; Time:  $\beta = -0.02$ ,  $CI_{95\%} [-0.06: 0.01]$ ,  $t(221.07) = -1.44$ ,  $p = .152$ ; Cost-Inflicting Mate Retention:  $\beta = -0.05$ ,  $CI_{95\%} [-0.16: 0.06]$ ,  $t(4.16) = -1.28$ ,  $p = .266$ ). Results of this analysis demonstrated that intimates on average engaged in relatively frequent benefit-provisioning behaviors at the start of their marriages,  $\beta = 1.68$ ,  $CI_{95\%} [1.61: 1.75]$ ,  $t(120.00) = 47.36$ ,  $p < .001$ , effect-size  $r = 0.97$ , that decreased over time,  $\beta = -0.07$ ,  $CI_{95\%} [-0.09: -0.05]$ ,  $t(234.48) = -8.20$ ,  $p < .001$ , effect-size  $r = 0.47$ .

### 3.3.3. Is intimates' attachment insecurity associated with their average cost-inflicting and benefit-provisioning mate retention across the early years of marriage?

To examine whether intimates' attachment insecurity at baseline was associated with their average mate retention across the early years of marriage (while simultaneously exploring sex-differentiated effects), we again estimated two 2-level cross models using the mixed-model function in SPSS 25. In the first model, we regressed cost-inflicting mate retention onto husbands' and wives' Intercept, Time, Attachment Anxiety, and Attachment Avoidance, where (a) Time was centered (thus Intercepts represented intimates' average mate retention), (b) we additionally controlled for intimates' Benefit-Provisioning Mate Retention<sup>3</sup>, (c) we allowed husbands' and wives' Intercept estimates to vary randomly (direct tests confirmed this was the best model; see Matuschek et al., 2017), and (d) we constrained husbands' and wives' Intercept, Time, and Benefit-Provisioning Mate Retention parameters to be equal, but estimated husbands' and wives' Attachment Anxiety and Attachment Avoidance parameters separately given direct contrasts revealed they significantly differed (anxiety:  $\beta = -0.18$ ,  $CI_{95\%} [-0.27: -0.08]$ ,  $t(109.54) = -3.75$ ,  $p < .001$ , effect-size  $r = 0.34$ ; avoidance:  $\beta = 0.15$ ,  $CI_{95\%} [0.05: 0.24]$ ,  $t(111.98) = 3.02$ ,  $p = .003$ , effect-size  $r = 0.27$ ). Results of this analysis are reported in the top half of Table 4. As can be seen, whereas husbands with higher (versus lower) attachment anxiety engaged in more cost-inflicting behaviors across the early years of marriage, wives with higher (versus lower) attachment anxiety only trended toward engaging in more cost-inflicting behaviors across the early years of marriage. Likewise, whereas husbands with higher (versus lower) attachment avoidance engaged in fewer cost-inflicting behaviors across the early years of marriage, wives with higher (versus lower) attachment avoidance trended toward engaging in more cost-inflicting behaviors across the early years of marriage. Nevertheless, given that we did not predict these sex differences a priori, and given that they differed from the sex-differentiated effects that emerged in Study 1, readers should interpret them with caution. We conducted an additional analysis to explore whether the effects emerged independent of intimates' psychological aggression; they did (for husbands'

attachment anxiety:  $\beta = 0.24$ ,  $CI_{95\%} [0.16: 0.31]$ ,  $t(90.79) = 6.51$ ,  $p < .001$ , effect-size  $r = 0.56$ ; for wives' attachment anxiety:  $\beta = 0.05$ ,  $CI_{95\%} [-0.01: 0.10]$ ,  $t(70.38) = 1.68$ ,  $p = .098$ , effect-size  $r = 0.20$ ; for husbands' attachment avoidance:  $\beta = -0.10$ ,  $CI_{95\%} [-0.17: -0.03]$ ,  $t(85.59) = -2.77$ ,  $p = .007$ , effect-size  $r = 0.29$ ); for wives' attachment avoidance:  $\beta = 0.052$ ,  $CI_{95\%} [-0.004: 0.109]$ ,  $t(75.029) = 1.858$ ,  $p = .067$ , effect-size  $r = 0.21$ ).<sup>6</sup>

In the second model, we regressed benefit-provisioning mate retention onto husbands' and wives' Intercept, Time, Attachment Anxiety, and Attachment Avoidance, where (a) Time was again centered, (b) we additionally controlled for intimates' Cost-Inflicting Mate Retention<sup>3</sup>, (c) we allowed husbands' and wives' Intercept and Cost-Inflicting Mate Retention estimates to vary randomly (direct tests confirmed this was the best model; see Matuschek et al., 2017), and (d) we constrained husbands' and wives' Time, Attachment Anxiety, Attachment Avoidance, and Cost-Inflicting Mate Retention parameters to be equal, but estimated husbands' and wives' Intercepts separately given direct contrasts revealed they significantly differed,  $\beta = -0.11$ ,  $CI_{95\%} [-0.20: -0.02]$ ,  $t(105.39) = -2.37$ ,  $p = .020$ , effect-size  $r = 0.22$ . Results of this analysis are reported in the bottom half of Table 4. As can be seen, both husbands' and wives' attachment anxiety was unassociated with their average benefit-provisioning mate retention over time. In contrast, however, husbands and wives with higher (versus lower) attachment avoidance engaged in fewer benefit-provisioning behaviors across the early years of marriage. We again conducted an additional analysis to explore whether this effect emerged independent of psychological aggression; it did,  $\beta = -0.13$ ,  $CI_{95\%} [-0.19: -0.06]$ ,  $t(176.61) = -3.94$ ,  $p < .001$ , effect-size  $r = 0.28$ .<sup>6</sup>

### 3.3.4. Does mate retention at a given assessment predict intimates' partners' subsequent satisfaction, controlling for intimates' attachment insecurity?

To examine whether mate retention at a given assessment predicted changes in intimates' partners' marital satisfaction at the subsequent assessment independent of intimates' attachment insecurity, we estimated a lagged 2-level cross model. Specifically, we regressed intimates' partners' marital satisfaction onto husbands' and wives' Intercept, Time, Cost-Inflicting Mate Retention at the previous assessment, and Benefit-Provisioning Mate Retention at the previous assessment, controlling for Time, Partner Marital Satisfaction at the previous assessment, as well as intimates' Attachment Anxiety and Attachment Avoidance. In this model, we (a) controlled for Partner Marital Satisfaction at the previous assessment so that the dependent variable could be interpreted in terms of change in partner satisfaction since the previous assessment, (b) controlled for Time given that partner marital satisfaction on average declined over time,  $\beta = -0.09$ ,  $CI_{95\%} [-0.12: -0.06]$ ,  $t(374.31) = -5.12$ ,  $p < .001$ , effect-size  $r = 0.26$ , (c) allowed wives' Intercept and Partner Marital Satisfaction (at the previous assessment) estimates to vary randomly (direct tests confirmed this was the best model; see Matuschek et al., 2017), and (d) constrained husbands' and wives' parameters to be equal, except for husbands' and wives' Partner Marital Satisfaction (at the previous assessment) parameters given direct contrasts revealed they significantly differed,  $\beta = -0.32$ ,  $CI_{95\%} [-0.54: -0.10]$ ,  $t(96.12) = -2.83$ ,  $p = .006$ , effect-size  $r = 0.28$ . The results of this analysis demonstrated that intimates who reported more (versus fewer) cost-inflicting mate-retention behaviors at a given assessment had partners who reported greater declines in marital satisfaction six months later,  $\beta = -0.16$ ,  $CI_{95\%} [-0.25: -0.07]$ ,  $t(471.23) = -3.44$ ,  $p = .001$ , effect-size  $r = 0.16$ . The frequency of intimates' benefit-provisioning mate retention at a

<sup>6</sup>We additionally explored whether attachment anxiety and avoidance interacted to predict mate retention with no a priori predictions; the interactions did not reach traditional significance (for cost-inflicting mate retention:  $p = .081$ , see the SM for details regarding this trending interaction; for benefit-provisioning mate retention,  $p = .811$ ).

**Table 4**

Associations between intimates' baseline attachment insecurity, average cost-inflicting mate retention, and average benefit-provisioning mate retention in Study 2.

|   | $\beta$             | CI <sub>95%</sub>  | df     | <i>r</i> |
|---|---------------------|--------------------|--------|----------|
| DV: Cost-inflicting mate retention      |                     |                    |        |          |
| Intercept                               | 0.3600***           | (0.3003: 0.4197)   | 116.61 | –        |
| Time                                    | –0.0001             | (–0.0152: 0.0150)  | 264.09 | 0.00     |
| Benefit-provisioning mate retention     | 0.1270***           | (0.0982: 0.1558)   | 575.87 | 0.34     |
| Husbands' attachment anxiety            | 0.2307***           | (0.1570: 0.3044)   | 87.12  | 0.55     |
| Wives' attachment anxiety               | 0.0528 <sup>†</sup> | (–0.0030: 0.1106)  | 67.11  | 0.22     |
| Husbands' attachment avoidance          | –0.0954*            | (–0.1686: –0.0222) | 82.16  | 0.27     |
| Wives' attachment avoidance             | 0.0498 <sup>†</sup> | (–0.0078: 0.1073)  | 71.72  | 0.20     |
| DV: Benefit-provisioning mate retention |                     |                    |        |          |
| Husbands' intercept                     | 1.5588***           | (1.4758: 1.6419)   | 125.49 | –        |
| Wives' intercept                        | 1.4521***           | (1.3770: 1.5272)   | 108.91 | –        |
| Time                                    | –0.0694***          | (–0.0865: –0.0523) | 241.76 | 0.46     |
| Cost-inflicting mate retention          | 0.2337***           | (0.1717: 0.2957)   | 51.02  | 0.73     |
| Attachment anxiety                      | 0.0320              | (–0.0339: 0.0979)  | 166.53 | 0.07     |
| Attachment avoidance                    | –0.1300***          | (–0.1935: –0.0666) | 177.41 | 0.29     |

Note. Effect-size *r* is reported.

<sup>†</sup> *p* < .10.

\* *p* < .05.

\*\*\* *p* < .001.

given assessment was not associated with their partners' subsequent marital satisfaction,  $\beta = 0.04$ , CI<sub>95%</sub> [–0.04: 0.11],  $t(452.12) = 0.98$ ,  $p = .329$  (results for all model parameters are provided in the SM).

Given that intimates' cost-inflicting mate retention predicted their partners' marital satisfaction six months later, we further examined whether husbands' and wives' cost-inflicting mate retention mediated the associations between their attachment insecurity at baseline and their partners' marital satisfaction six months later. Using the Monte Carlo method for assessing mediation (Selig & Preacher, 2008), we found that husbands' cost-inflicting mate retention indeed mediated the association between their attachment anxiety and their partners' subsequent marital satisfaction,  $\beta = -0.04$ , CI<sub>95%</sub> [–0.06: –0.01]; wives' cost-inflicting mate retention trended toward mediating the association between their attachment anxiety and their partners' subsequent marital satisfaction,  $\beta = -0.009$ , CI<sub>90%</sub> [–0.019: –0.001]. Moreover, we found that husbands' cost-inflicting mate retention indeed mediated the association between their attachment avoidance and their partners' subsequent marital satisfaction,  $\beta = 0.02$ , CI<sub>95%</sub> [0.003: 0.033]; wives' cost-inflicting mate retention trended toward mediating the association between their attachment avoidance and their partners' subsequent marital satisfaction,  $\beta = -0.0080$ , CI<sub>90%</sub> [–0.0175: –0.0004]. That is, intimates with relatively higher (versus lower) attachment anxiety performed more frequent cost-inflicting behaviors, which predicted lower partner marital satisfaction six months later (though this mediated effect only trended toward significance among wives); intimates with relatively higher (versus lower) attachment avoidance performed fewer cost-inflicting behaviors, which predicted higher partner marital satisfaction six months later (though, again, this mediated effect only trended toward significance among wives).

## 4. Discussion

### 4.1. Rational and summary of results

According to attachment theory, working models of attachment influence how people respond to relationship threats. One pervasive relationship threat is the threat of partner defection. Anxiously attached individuals over-perceive threats of partner defection and thus may be especially likely to engage in both positive and negative behaviors aimed at partner retention. Avoidantly attached individuals under-perceive or ignore threats of partner defection and thus may be less likely to engage in either positive or negative behaviors aimed at partner retention. Moreover, given the partner-directed nature of such behaviors, it is likely that they have implications for intimates' partners.

The current studies provided support for these possibilities. Specifically, attachment anxiety was positively associated with cost-inflicting mate retention; attachment avoidance was negatively associated with benefit-provisioning mate retention—moreover, these associations emerged independent of another previously examined partner-directed behavior: psychological aggression (Gormley & Lopez, 2010; in Study 2). Study 2 further demonstrated that cost-inflicting mate retention remains low and stable over time (at least across the early years of marriage) whereas benefit-provisioning mate retention decreases over time. Study 2 further demonstrated that intimates' cost-inflicting behaviors are (1) associated with declines in partner marital satisfaction over time and (2) mediated the associations between intimates' attachment insecurity (both anxiety and avoidance) and their partners' subsequent marital satisfaction; specifically, the partners of more (versus less) anxiously attached intimates experienced declines in marital satisfaction over time that was due, in part, to experiencing more frequent cost-inflicting behaviors, and the partners of more (versus less) avoidantly attached intimates experienced increases in marital satisfaction over time that was due, in part, to experiencing fewer cost-inflicting behaviors.

It is worth highlighting that the associations between intimates' attachment insecurity and mate retention demonstrated in the current research appear robust. They emerged in two independent studies that spanned both dating relationships and married couples, emerged independent of psychological aggression, and partially replicated previous research (see Barbaro et al., 2016, 2019). Although we did not replicate the previously demonstrated positive association between attachment anxiety and benefit-provisioning mate retention (see Barbaro et al., 2016, 2019), this may be due in part to our decision to control for one type of mate retention when examining the other, thus isolating the unique associations between each facet of attachment insecurity and each facet of mate retention. Indeed, prior research has only examined the partial associations controlling for both types of attachment insecurity. Nevertheless, future research may benefit from examining precisely when and why these associations emerge.

The sex-differentiated effects that emerged in the current research also warrant discussion. Our finding in Study 2 that the association between attachment anxiety and cost-inflicting mate retention was stronger among men than among women was consistent with prior research (see Barbaro et al., 2016). Likewise, our finding in Study 1 that men (versus women) with relatively low attachment anxiety performed more frequent benefit-provisioning behaviors was consistent with prior research (see Barbaro et al., 2019). Nevertheless, our finding in Study 1 that men's (but not women's) attachment anxiety was *negatively*



associated with their benefit-provisioning mate retention was inconsistent with prior findings that women's (but not men's) attachment anxiety was *positively* associated with their benefit-provisioning behaviors (Barbaro et al., 2019). Future research would benefit from further exploring these inconsistencies and examining precisely when and why they emerge.

#### 4.2. Implications and future directions

The current research has several important theoretical and practical implications. Theoretically, this research provides empirical evidence in support of the vulnerability-stress-adaptation model (Karney & Bradbury, 1995). According to this model, intimates' enduring vulnerabilities influence notable relationship processes, which subsequently impact relationship satisfaction. In the current work, intimates' attachment insecurity—a notable enduring vulnerability—was associated with the frequency with which they engaged in mate-retention behaviors. As other research has demonstrated (Buss, 1988; Buss & Shackelford, 1997), such behaviors help relationships to endure, which likely reinforces those behaviors. Indeed, in Study 2, intimates' cost-inflicting mate retention remained stable over time. Ironically, however, these reinforcing behaviors negatively impacted intimates' partners' subsequent relationship satisfaction. It is likely that such decreased satisfaction has downstream negative consequences for relationship stability (see Karney & Bradbury, 1995). Although we did not explore such consequences in the current research, future research may benefit from doing so.

Moreover, this research is among the first to our knowledge to demonstrate the long-term implications of mate retention for intimates' partners' relationship outcomes. Given the interdependent nature of intimate relationships (Kelley & Thibaut, 1978), and given the partner-directed nature of mate retention, intimates' mate retention should impact their partners. In the current research, intimates who engaged in more frequent cost-inflicting mate retention had partners who experienced decreased satisfaction six months later. It is worth noting that having a less satisfied partner may serve as an additional relationship threat that further activates intimates' working mental model of attachment that in turn exacerbates cost-inflicting mate retention for anxiously attached individuals. Such behaviors would likely further decrease partner satisfaction, which would ultimately create a negative feedback loop that could result in relationship dissolution. Again, future research would benefit from examining this possibility.

This research also demonstrates the importance of isolating unique associations when examining related constructs. To further our understanding of relationships and relationship processes, it is important to ensure to the best of our ability that any effects observed are not driven by another construct, especially when investigating interrelated traits and behaviors. For this reason, this is the first research to our knowledge that examined the unique associations between each facet of attachment insecurity and each facet of mate retention.

Practically, the current research underscores that mate-retention behaviors are not created equal, despite their shared goal of preventing partner defection. Specifically, the current research suggests that engaging in benefit-provisioning mate-retention behaviors and avoiding cost-inflicting mate-retention behaviors may be the most effective way for intimates to retain their partners while not impacting their partners' satisfaction. Given that more (versus less) anxious intimates were more likely to engage in cost-inflicting mate retention, interventions that teach intimates to channel their relationship anxiety away from such negative behaviors and into positive behaviors (i.e., benefit-provisioning mate retention) could be beneficial. Similarly, given that more (versus less) avoidant intimates were less likely to engage in benefit-provisioning mate retention, interventions that motivate typically avoidant intimates to engage in such behaviors could be beneficial.

Although previous research (Simpson et al., 1992; Simpson et al., 2002) has examined situations that activate individuals' working

mental attachment models and elicit certain behaviors (e.g., support seeking, support giving), future research would benefit from examining specific situational factors that activate individuals' attachment system and elicit increased mate retention. In the current research, individuals' trait attachment insecurity (i.e., general level of attachment anxiety and avoidance) was associated with their mate retention. It is possible, however, that such associations may be exacerbated by the situational context, namely a situational context that represents a threat of partner defection. For example, discussions of partner infidelity or the presence of attractive alternatives may activate intimates' attachment system, which could subsequently produce greater mate retention. Future research would benefit from examining this and other situational contexts that activate the attachment system.

#### 4.3. Strengths and limitations

Several strengths of this research enhance our confidence in the findings reported here. First, rather than using intimates' perceptions of partner satisfaction, Study 2 utilized partners' reports of their satisfaction. Given that attachment insecurity biases intimates' perceptions of their relationship and their partner (Overall, Fletcher, Simpson, & Fillo, 2015), partners' reports provided an unbiased assessment and thus allowed us to examine a real and consequential outcome. Second, rather than assessing all constructs cross-sectionally, Study 2 utilized a longitudinal design, which enabled us to examine the impact of intimates' attachment insecurity and mate retention on partners' subsequent relationship satisfaction. Finally, in Study 2, we demonstrated that the associations between intimates' attachment insecurity and their mate retention emerged independent of another partner-directed behavior—psychological aggression, enhancing our confidence that observed associations are unique to mate retention.

Despite these strengths, however, several factors limit the interpretation of these findings until they can be replicated and extended. First, although similar patterns emerged among dating (Study 1) and married (Study 2) people, our samples were relatively young, thus limiting the generalizability of our findings to other samples (e.g., older couples). Indeed, given that the perceived quality of alternative partners decreases and relationship commitment increases over time (Rusbult, 1983), it is possible that the threat of alternative partners and partner defection declines in older couples, attenuating the associations between attachment insecurity and mate retention. Future research may benefit from examining this possibility.

Second, in both studies, we assessed self-reported mate retention and it is possible that attachment insecurity is systematically associated with self-reporting or memory bias. That is, it is possible that anxiously attached individuals over-perceive their cost-inflicting mate retention, and avoidantly attached individuals under-perceive their benefit-provisioning mate retention. It is worth noting that, in the current research, self-reported mate retention predicted partner-reported marital satisfaction, providing preliminary support for the possibility that participants accurately reported their mate retention. Nevertheless, future research may benefit from examining the association between intimates' attachment insecurity and objectively assessed mate retention.

Third, we only assessed attachment insecurity at baseline. Although individuals' romantic attachment styles are largely stable across adulthood (Kirkpatrick & Hazan, 1994), they can fluctuate over time (Davila, Burge, & Hammen, 1997). Thus, future research may benefit from examining whether such fluctuations are associated with fluctuations in mate retention.

Finally, despite the longitudinal nature of Study 2, all data presented here are correlational and thus cannot support strong causal claims. Moreover, although we controlled for psychological aggression in Study 2, we were unable to account for other potential third variables that could influence associations between attachment insecurity, mate retention, and partner satisfaction. Thus, future research may benefit from experimentally manipulating intimates'

attachment (e.g., Gillath, Hart, Nofhle, & Stockdale, 2009) to examine its causal influences on mate retention and subsequent partner satisfaction.

#### 4.4. Conclusion

The current research highlights the importance of utilizing dyadic methodologies to examine partner outcomes especially when studying partner-focused systems such as the attachment system and partner-directed behaviors such as mate retention. Romantic relationships are inherently interdependent (Kelley & Thibaut, 1978) and thus each couple member's behaviors directly and indirectly influence his or her partner's outcomes. Perceptions of partner defection can activate individuals' working models of attachment (Mikulincer et al., 2003; Mikulincer & Shaver, 2003) that, as the current research demonstrates, influence their mate retention and their partners' subsequent relationship satisfaction. Overall, this work underscores the importance of examining aspects of each couple member in order to fully understand relationship functioning.

#### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.paid.2019.109534>.

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