

# Social threat, social reward, and regulation of investment in romantic relationships

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## Abstract

Regulation of romantic investment is often examined in terms of concerns over self-protection. Perceived opportunity for intimate connection has been an overlooked motivational force in investment decisions. In 4 studies, participants assessed risks of rejection and opportunity for connection from future partners (among single participants), current partners (among coupled participants), and ex-partners (all participants). Beyond rejection risks, intimacy potential of future/current partners negatively predicted pining for an ex-partner, whereas intimacy potential of ex-partners positively predicted such longing. Rewarding ex-partners garnered particularly strong investment when future/current partners were lacking in intimacy potential, suggesting the need to belong motivates pursuit of intimacy in a hydraulic fashion: When connection is lacking in one relationship, the draw of intimacy from another becomes particularly strong.

Research suggests that satisfaction of belongingness needs involves both the pursuit of social reward and the avoidance of social threat (e.g., Impett et al., 2010; MacDonald & Tackett, 2011). However, social psychological models of the regulation of emotional investment in romantic relationships—that is, decisions to depend on and commit to a romantic partner—are often framed primarily in terms of concerns over self-protection from socially threatening experiences of hurt feelings and rejection. Although research on romantic investment has established that the self-protective motivations induced by perceiving threat act as a restraint on romantic approach motivations (e.g., Murray, Holmes, & Collins,

2006), the focus of this work on threat leaves less clear the motivating forces impelling people to seek out romantic opportunities. If perceived social threat restrains romantic investment, does perceived social reward impel it? The purpose of the present research is to test whether perceptions of social reward from romantic partners play a significant role in emotional investment in ex-partners above and beyond perceptions of social threat. We suggest that an absence of rejection threat is not sufficient to satisfy the need to belong—individuals crave social rewards such as intimacy for full satisfaction of belongingness needs. As a result, we propose that a lack of perceived reward in available (i.e., current or future) romantic relationships should make it relatively difficult to emotionally detach from ex-partners who are perceived as highly rewarding.

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## *Social threat and regulation of romantic investment*

According to dependency regulation theory (Murray, Holmes, MacDonald, & Ellsworth,

1998; Murray et al., 2006), individuals are only willing to risk vulnerability and closeness with a romantic partner when they are confident in their partner's positive regard and acceptance. Concerns over negative evaluation and rejection by a romantic partner place this positive regard in doubt and lead to the restraint of relational approach motivations. For example, individuals with low self-esteem exposed to threats of failure or social faux pas respond with heightened doubts about their partner's regard and greater emotional withdrawal from their partner (Murray et al., 1998). Similarly, when confronted with even a mild relationship threat, individuals with low self-esteem experience reduced general (not just relational) approach motivations (Cavallo, Fitzsimons, & Holmes, 2009). Thus, social threat appears to influence the regulation of romantic investment through the restraint of approach motivations.

#### *Social reward and regulation of romantic investment*

Reinforcement sensitivity theory (RST; Gray & McNaughton, 2000) suggests that behavior regulation is influenced by both punishment (or threat of punishment) and reward (or opportunity for reward). This suggests that research on the regulation of relational investment needs to add a simultaneous accounting of relationship rewards to its accounting of rejection threat. Although the rewards of relationships are many and varied, we focus on intimacy and connection in our approach. First, we construe intimacy and connection as one of the most fundamental and profound rewards of relating to others (e.g., Laurenceau & Kleinman, 2006). Second, our past work has provided empirical evidence that perceptions of the opportunity for intimacy and connection can be statistically independent of, and uncorrelated with, perceptions of rejection threat (MacDonald & Tackett, 2011). Thus, to the extent that RST suggests that reward should form a dimension of social perception independent of threat, perceptions of intimacy and connection can fulfill this criterion.

One previously established research approach that has accounted for both positive

and negative influences on relationship behavior regulation is work examining social approach and avoidance goals. Social avoidance goals are focused on avoiding negative social outcomes, such as conflict or rejection, whereas social approach goals are focused on obtaining positive social outcomes, such as fun and intimacy (Elliot, Gable, & Mapes, 2006; Gable, 2006; Gable & Strachman, 2008). RST suggests that although perceptions of rewards/threats influence approach/avoidance goals and motivations, the two sets of constructs are not identical. For example, RST suggests that approach goals are not just activated by the presence of reward but also by the absence of an expected threat. In relational terms, this suggests that an individual who expects a rejecting response that does not manifest may feel more inclined to approach closeness with another. Similarly, avoidance goals can be activated not just by the presence of threat but also by the absence of expected reward. Again in relational terms, this suggests that an individual who expects an intimate response that does not manifest may feel more inclined to avoid closeness. As a result, it is our perspective that studying perceptions and expectations of threat and reward in addition to approach/avoidance goals is an important endeavor in understanding the regulation of relational behavior. In the current research, we statistically account for social approach and avoidance goals to ensure a unique role for social threats and rewards.

Research from Aron and colleagues' self-expansion perspective suggests that perceived opportunities for growing intimacy and closeness are an important aspect of achieving and maintaining a full sense of belonging (e.g., Aron & Aron, 1996; Aron, Paris, & Aron, 1995). The sense of closeness or unity between self and partner predicts greater stability of relationships (Aron, Aron, & Smollan, 1992; Tsapelas, Aron, & Orbuch, 2009) and more mutually satisfying problem solving among spouses (Simmons, Gordon, & Chambless, 2005). Thus, although the motivation to emotionally invest in romantic relationships may be restrained by perceived potential for rejection, such motivation may also be energized

by perceived opportunities for intimacy and connection (Gable & Strachman, 2008).

Few studies have examined the influence of threat and reward simultaneously on romantic investment, but those that have provide strong support for our hypothesis that reward is a significant motivator of investment over and above threat. For example, dating couples in Lewandowski and Ackerman's (2006) research were asked to evaluate their current and anticipated levels of self-expansion within their relationship (potentially an important source of reward), as well as their sense of safety and security with their partner. Those who felt their relationship provided low opportunities for self-expansion were more likely to report intentions to commit acts of infidelity in the near future. Low levels of self-expansion opportunities predicted infidelity intentions even when controlling for levels of security within the current relationship. In other words, when examined simultaneously, needs for self-expansion were found to be vital for relationship stability above and beyond needs for safety from rejection threat.

Research suggests, then, that social reward is an important aspect of satisfying the need to belong (Baumeister & Leary, 1995). If this is the case, when social reward is lacking in a relationship, individuals should be motivated to seek it elsewhere. This is known as the substitution hypothesis (Baumeister & Leary, 1995); belonging needs that are frustrated in one relationship can be satisfied through a substitute relationship. For instance, husbands' failures to satisfy wives' intimacy and companionship needs are among the most commonly cited reasons for extramarital affairs among women (Lawson, 1988). Although a potentially rewarding romantic partner may be strongly attractive, this attraction should be especially strong among individuals whose need for social reward is not being met in current relationships. However, those who see high levels of reward in their current relationships, and thus whose belongingness needs are relatively satiated, should not be as strongly tempted by alternative relationships with high reward potential. Research on the investment model of relationships provides strong support for the

substitution hypothesis. The investment model consistently demonstrates that when satisfaction and commitment are high in one's current relationship, alternative partners are seen as less desirable. However, when satisfaction and commitment are low, alternative partners are seen as more attractive and are more likely to be desired targets of approach and dating (e.g., Johnson & Rusbult, 1989; Rusbult, 1983). We believe that investment and substitution processes may be particularly useful for understanding patterns of attachment to ex-romantic partners.

#### *Regulation of emotional investment in ex-partners*

Continued desire to invest emotionally in ex-partners following the end of a relationship is an important domain of exploration because longing for an ex has several known adverse effects. Emotionally, attachment to an ex-partner after a breakup takes a toll by maintaining feelings of sadness (Sbarra & Ferrer, 2006) and reducing emotional adjustment over time (Frazier & Cook, 1993). Behaviorally, attachment to an ex-partner is associated with greater attempts at proximity-seeking and reconnection with the ex-partner, which in turn further exacerbate feelings of anger and hostility (Davis, Shaver, & Vernon, 2003) and maintain feelings of love and sadness (Sbarra & Emery, 2005). It is therefore generally maladaptive for individuals to pine for ex-partners or seek to reunite with them.

Such maladaptive patterns may represent attempts to satisfy unmet needs for social reward. If, following a breakup, an individual sees no outlet through which needs for intimacy can be satisfied, ex-partners still seen as capable of providing a source of intimacy may maintain an emotional grip. However, there should be less motivation to remain attached to an ex when alternative sources of social reward are available. In support of this notion, those who are less optimistic about future romantic partners are also those who are most strongly attached to their ex-partners (Carnelley & Janoff-Bulman, 1992; Spielmann, MacDonald, & Wilson, 2009). However, such emotional attachment decreases

when individuals' optimism about the availability of new partners is increased through experimental manipulations (Spielmann et al., 2009). Therefore, it may be especially difficult to let go of rewarding ex-partners when future or current partners are not rewarding, whereas alternative sources of reward should reduce the need to hang on to ex-partners.

### *Present research*

The primary purpose of the present research is to explore whether, over and above the effect of social threat, social reward motivates emotional investment in ex-partners. Furthermore, if social reward were to play a role in romantic investment above and beyond the role of threat, we intended to explore whether the effects of reward are subject to the principle of substitution such that deficits in reward from future/current relationship partners are associated with emotional investment in ex-partners, whereas rewarding future/current relationships are associated with decreased pursuit of reward from ex-partners.

The phenomenon of emotional attachment to past romantic partners provides an interesting context for our examination of romantic investment regulation for several reasons. First, longing for an ex-partner is commonly accompanied by negative affect and hostility toward the ex-partner (Davis et al., 2003; Sbarra & Ferrer, 2006). Given that self-protection goals may be especially salient in this context (e.g., Murray et al., 2006), one might expect regulation of emotional investment in ex-partners to be particularly guided by desires to avoid social threat. Testing for effects of social reward over and above threat in this context, then, may provide a conservative test of our ideas. A second benefit is that a focus on attachment to past partners provides a context in which a hydraulic, or substitution, model can be tested directly. That is, we can test whether low reward in one relationship makes high reward in another relationship particularly attractive (Spielmann et al., 2009). It may be, then, that emotional attachment to ex-partners stems in part from a lack of fulfillment of belongingness needs with others.

The present research consists of four correlational studies in which we explored the simultaneous influence of perceptions of threat and reward on regulation of emotional investment in ex-partners—assessed by emotional attachment to ex-partners in all four studies, and behavioral intentions to pursue ex-partners in Studies 1B and 2B. Studies 1A and 1B included individuals who were single and who considered threat and reward from their recent ex-partners as well as their anticipated future partners. Studies 2A and 2B examined those who were involved in ongoing romantic relationships who considered threat and reward from their recent ex-partners as well as their current romantic partners. Furthermore, for each relationship context, one study was conducted with a sample of undergraduate students, whereas the other study was conducted with a community sample.

We aim to explore three hypotheses:

- H1: *Emotional investment in ex-partners will be predicted by perceptions of the ex-partner as holding high social reward potential above and beyond perceptions of the ex-partner as holding low social threat potential.*
- H2: *Emotional investment in ex-partners will be predicted by perceptions of future partners (for those currently single) or current partners (for those currently in a relationship) as holding low social reward potential above and beyond perceptions of future/current partners as holding high social threat potential.*
- H3: *There will be an interaction between perceptions of social reward from ex-partners and future/current partners, such that emotional investment in ex-partners will be predicted by the social reward value of future/current partners only when ex-partners are perceived as high in reward value. In other words, highly rewarding future/current partners will only be needed as a buffer against attachment to an ex when that ex is seen as highly rewarding.*

## Studies 1A and 1B

### Method

#### Participants

To be eligible to participate in Study 1, individuals were required to be single at the time of the study and have had experienced a breakup at some point in their romantic history.

*Study 1A.* Participants in Study 1A were undergraduate students participating for course credit in an introductory psychology course. Eighty-two participants were recruited, with 80 meeting all inclusion criteria.<sup>1</sup> Participants ranged in age from 17 to 25 years old ( $M = 19.5$ ,  $SD = 2.1$ ). There were 22 males and 58 females.<sup>2</sup> Participants reported that their most recent relationship had ended between 2 weeks and 24 months prior to participation in the study ( $M = 7.5$  months prior,  $SD = 5.5$ ), and that their past relationship had lasted between 1 month and 48 months in length ( $M = 9.5$  months,  $SD = 10.4$ ).

*Study 1B.* Individuals in Study 1B were invited through online forums, such as Craigslist.org, to participate in an Internet survey in exchange for entry into a draw for a \$50CAD gift certificate. Two hundred sixty-four people were recruited, with 163 meeting all inclusion criteria. There were 34 males and 129 females, aged 18–57 years ( $M = 28.8$ ,  $SD = 9.6$ ). Participants had experienced the end of their most recent relationship between less than 1 month and 334 months prior to participation in the study ( $M = 22.9$  months prior,  $SD = 41.5$ ), and reported that their past relationship had lasted between 1 month

and 370 months ( $M = 25.5$  months,  $SD = 41.2$ ). The majority of respondents were from Canada and the United States.

#### Procedure

Student participants in Study 1A each completed the questionnaires described below in groups of up to six people, whereas community participants in Study 1B completed the study online. However, the final three measures (behavioral intentions to pursue ex-partner, intentions to find new partner, and approach/avoidance goals) were completed only by participants in Study 1B.

#### Measures

*Relationship characteristics.* Participants described the characteristics of their most recently ended romantic relationship, such as the time passed since the breakup and the length of the ended relationship. On a scale from 1 (*not at all*) to 9 (*very much*), participants also indicated the extent to which they experienced the following emotions at the time of the relationship dissolution: sadness, anger, acceptance, anxiety, relief, contentment, frustration, confusion, happiness, and heartbreak. Positive emotions were reverse-coded to create a measure reflecting participants' recalled negative breakup feelings.

*Perceptions of social threat and reward in relationships.* Measures of participants' perceptions of social threat and reward in romantic relationships were obtained using two modified versions of MacDonald and Tackett's (2011) Social Threat and Reward Scales (STARS). Although the original STARS assesses expectations of social threat and reward when anticipating interactions with a stranger, our modified scales assess perceptions of social threat and reward in romantic relationships.

The adaptations of these scales involved several steps of development and validation. We began the present scale construction process using the 33 original STARS items from MacDonald and Tackett (2011) that translated sensibly to a romantic context, and then framing them to refer to ex-partners and future

1. Each study included a small sample of participants who were excluded from analyses. Criteria for exclusion included inappropriate relationship status, lack of breakup experience, response sets, or withdrawal from the study prior to completion. The larger number of exclusions in Studies 1B and 2B were due to the final criterion, such that attrition rates were larger for the studies conducted online.
2. The data sets from Study 1A and Study 2A were part of Study 1 in Spielmann and colleagues (2009). However, the associations in the present research were not previously reported.

partners, specifically. To maximize the validity of the factor analysis, we increased the sample size by merging data from three different collection periods (this included data from Study 1A, as well as two additional data sets not presented in the present research;  $N = 248$ ). The primary goal of the scale construction was to develop concise measures that contained the best indicators for each scale while also focusing on convergence across the ex- and future partner scales. We conducted an iterative exploratory factor analytic (EFA) procedure using Mplus (Muthén & Muthén, 2010; Version 6) separately for the ex- and future partner scales, comparing the results across scales at each step to ensure convergence, and deleting items that did not load highly across both scales. The final scales used in the present research yielded nine items reflecting romantic reward and six items reflecting romantic threat (see the Appendix).<sup>3</sup>

Participants in Studies 1A and 1B reported their expectations for social threat and social reward with future romantic partners (STARS–Romantic Future) and with their most recent ex-partner in an imagined renewal of their relationship (STARS–Romantic Ex). Social threat was assessed with items such as “I’m concerned about being judged negatively in future relationships,” in the STARS–Romantic Future scale and “I would be concerned about my partner judging me

negatively if we renewed our relationship,” in the STARS–Romantic Ex scale. Social reward was assessed with items such as “I think I could develop a meaningful connection with another partner,” in the STARS–Romantic Future scale and “I think we could develop a meaningful connection if we renewed our relationship,” in the STARS–Romantic Ex scale. Questions about past partners and future partners were presented in counterbalanced order. However, across all studies in the present research, order did not have an effect on perceptions of social threat and reward for any of the target romantic partners.

*Emotional attachment to ex-partner.* Emotional attachment to an ex-partner was assessed using an adapted version of Wegner and Gold’s (1995) hot- versus cold-flame questionnaire, used by Spielmann and colleagues (2009). On a scale from 1 (*strongly disagree*) to 5 (*strongly agree*), participants responded to four items: “Sometimes I still get sort of an aching feeling in my heart when I think about him/her,” “I am still in love with him/her,” “If s/he could come back into my life, I would immediately leave any current romantic relationship I was in,” and “Losing him/her was the worst thing that ever happened to me.”

*Behavioral intentions to pursue ex-partner.* Meta-analyses have revealed that not only are behavioral intentions strongly correlated with behavior (e.g., Armitage & Connor, 2001), but intentions play a moderate role in causing behavior (Webb & Sheeran, 2006). We thus explored in Study 1B whether perceptions of social threat and reward predicted not only feelings of longing for an ex-partner but also intentions to behaviorally pursue an ex-partner following a breakup. In order to assess participants’ intentions to actively pursue their ex-partners, we created a behavioral intentions scale consisting of seven items: “I intend to get back together with my ex-partner,” “I intend to keep track of my ex-partner’s current relationship status,” “I intend to have sex again with my ex-partner,” “I intend to turn to my ex-partner when I need someone to talk to,” “I intend to maintain regular contact

3. After four EFAs, 20 items remained, revealing a three-factor structure. Specifically, for both the ex-partner and future partner EFAs, satisfactory fit was found for both a three-factor (RMSEA = .067) and a four-factor (RMSEA = .060) solution as compared to a one-factor (RMSEA = .299) and two-factor solution (RMSEA = .111). However, the fourth factor in the four-factor solutions consisted of no highly loading items. Thus, the final EFA in both scales supported a three-factor solution as fitting the data well, revealing interpretable factors, and showing convergence across both ex- and future partner scales. The third emergent factor assessed relationship anxiety and was not included in the present analyses. The anxiety items focused on general feelings of anxiety in the relationship, not specific to the feelings or actions of one’s partner (e.g., “The idea of starting a new relationship makes me feel a little uneasy”), and thus did not clearly represent our theoretical conception of the primary threats involved in relationship contexts. Furthermore, exploratory analyses revealed that inclusion of the relationship anxiety subscale did not affect the pattern of results discussed in the present research.

with my ex-partner,” “I intend to keep track of what my ex-partner has been up to,” and “I intend to share my deep, private thoughts with my ex-partner.” Participants responded on a scale from 1 (*not at all*) to 5 (*definitely*). EFAs revealed that all items loaded highly onto a single factor.

*Intentions to find new partner.* To gauge intentions to move on to a new relationship, participants in Study 1B responded on a scale from 1 (*not at all*) to 5 (*definitely*) to the question “I intend to find a new partner in the near future.”

*Approach and avoidance goals.* To examine the role of social threat and reward above and beyond goals to approach positive relationship outcomes and avoid negative relationship outcomes, participants in Study 1B completed an adapted version of the friendship goals questionnaire (Elliot et al., 2006). The adapted questionnaire referred to approach and avoidance goals in “close relationships” in general, rather than any relationship specifically. Approach goals were assessed with items such as, “I want to enhance the bonding and intimacy in my close relationships,” and

avoidance goals were assessed with items such as, “I want to avoid getting embarrassed, betrayed, or hurt by any of the people close to me.”

## Results

Descriptive statistics for all four studies, such as means, standard deviations, and reliabilities, can be found in Table 1. Intercorrelations between variables in Studies 1A and 1B, respectively, can be found in Table 2. Standardized regression coefficients for analyses in Studies 1A and 1B can be found in Table 3.

### General analytic procedure

The same sets of analyses were conducted across all four studies. In all analyses, outliers defined as  $+3$  or  $-3$  *SD* from the mean were excluded. Perceptions of social threat and reward were regressed simultaneously, controlling for social approach and avoidance goals (in Studies 1B and 2B), and participants’ reports of negative feelings at the time of the breakup. Negative feelings at the time of the breakup were included as a covariate to ensure that effects of reward on emotional investment cannot be attributed to breakup initiator status

**Table 1.** Means, standard deviations, and reliabilities across studies

	Study 1A			Study 1B			Study 2A			Study 2B		
	<i>M</i>	<i>SD</i>	$\alpha$									
Reward ex	2.76	0.95	.89	2.87	1.24	.95	2.32	.95	.82	2.16	1.19	.96
Threat ex	2.69	0.85	.72	2.56	1.02	.84	2.51	1.08	.88	2.41	0.96	.77
Reward future	4.01	0.59	.78	4.03	0.81	.90	—	—	—	—	—	—
Threat future	3.01	0.66	.63	2.91	0.92	.83	—	—	—	—	—	—
Reward current	—	—	—	—	—	—	4.37	0.61	.87	4.31	0.80	.93
Threat current	—	—	—	—	—	—	2.52	0.75	.74	2.74	0.87	.81
Emotional attachment	1.89	.98	.79	2.37	1.27	.88	1.59	0.90	.83	1.86	1.20	.91
Negative breakup feelings	4.95	2.11	.84	5.99	1.81	.88	4.86	1.84	.90	5.58	1.73	.86
Intentions to pursue ex	—	—	—	2.10	1.10	.92	—	—	—	1.69	1.01	.94
Approach goals	—	—	—	7.37	1.71	.92	—	—	—	7.66	1.47	.92
Avoidance goals	—	—	—	6.63	1.91	.83	—	—	—	6.91	1.68	.79

Table 2. Intercorrelations between variables in Studies 1A and 1B

	Study 1A					Study 1B									
	1	2	3	4	5	1	2	3	4	5	6	7	8	9	10
1. Reward from ex-partner	—					—									
2. Threat from ex-partner	.16	—				.30***	—								
3. Reward from future partners	-.13	.00	—			-.11	-.17*	—							
4. Threat from future partners	-.13	.49***	.03	—		.07	.51***	-.17*	—						
5. Emotional attachment to ex-partner	.62***	.24*	-.30**	-.03	—	.69***	.44***	-.36***	.20*	—					
6. Negative feelings upon breakup	.39***	.31**	-.17	.16	.66***	.32***	.35***	-.03	.17*	.45***	—				
7. Intentions to pursue ex-partner	—	—	—	—	—	.56***	.22**	-.33***	.06	.56***	.11	—			
8. Intentions to find new partner	—	—	—	—	—	-.10	-.07	.50***	-.09	-.22**	.13	-.24**	—		
9. Approach goals	—	—	—	—	—	.05	.14	.27***	.07	.01	.19*	.10	.26***	—	
10. Avoidance goals	—	—	—	—	—	.12	.28***	-.09	.29***	.17*	.23**	.08	-.01	.57***	—

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

**Table 3.** Standardized regression coefficients ( $\beta$ ) for analyses in Studies 1A and 1B

	Outcome variable			
	Emotional attachment to ex-partner		Intentions to pursue ex-partner	Intentions to find new partner
	1A	1B	1B	1B
H1: Reward from ex-partner	.43***	.56***	.61***	-.12
Threat from ex-partner	.02	.21**	.10	-.08
Negative breakup feelings	.49***	.20**	-.12	.17*
Approach goals	—	-.13*	.10	.36***
Avoidance goals	—	.07	-.01	-.23*
H2: Reward from future partner	-.21**	-.33***	-.40***	.45***
Threat from future partner	-.15 <sup>†</sup>	.07	.01	-.03
Negative breakup feelings	.64***	.42***	.08	.13 <sup>†</sup>
Approach goals	—	.01	.26**	.17 <sup>†</sup>
Avoidance goals	—	.02	-.13	-.09
H3: Reward from ex-partner	.43***	.59***	.56***	-.09
Reward from future partner	-.19**	-.28***	-.34***	.44***
Negative breakup feelings	.46***	.25***	-.11	.15*
Approach goals	—	-.02	.26**	.17
Avoidance goals	—	.02	-.15 <sup>†</sup>	-.09
Reward Ex × Future interaction	-.19**	-.16**	-.12 <sup>†</sup>	.25***
H3: Simple effects tests for interaction				
Slope of reward future at low reward ex	-.04	-.09	-.20*	.15
Slope of reward future at high reward ex	-.36***	-.42***	-.45***	.66***
Slope of reward ex at low reward future	.57***	.76***	.69***	-.35***
Slope of reward ex at high reward future	.25**	.43***	.44***	.17

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

(i.e., was the breakup wanted or unwanted?).<sup>4</sup> In all analyses, inclusion of gender, time since the breakup, length of the past relationship, length of the current relationship (in Studies 2A and 2B), and attachment dimensions (Feeney, Noller, & Hanrahan, 1994) as covariates did not affect the pattern of results

found. In addition, inclusion of these variables as moderators did not produce patterns of interactions that remained consistent across the four studies.

*Social threat and reward from ex-partners (H1)*

In both Studies 1A and 1B, we hypothesized that perceived reward from ex-partners would predict emotional investment in ex-partners above and beyond perceived threat from ex-partners. As can be seen in section H1

4. We also assessed self-reported breakup initiator status (e.g., own decision, partner's decision, mutual decision). However, the inclusion of breakup initiator status instead of negative breakup feelings did not alter the pattern of results.

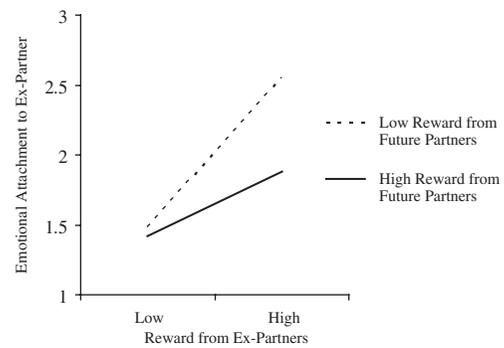
of Table 3, simultaneous regression of social threat and reward from ex-partners on both emotional attachment to the ex-partner and behavioral intentions to pursue an ex-partner consistently demonstrated that perceived social reward from ex-partners was a significant, positive predictor of emotional attachment to, and intentions to pursue, an ex-partner, whereas perceived social threat from ex-partners was not consistently a significant predictor. Moreover, these effects held when accounting for negative breakup feelings and approach/avoidance goals. Perceived threat and reward from ex-partners did not play a role, however, in predicting intentions to find a new partner in the near future.

#### *Social threat and reward from future partners (H2)*

We further hypothesized that perceived reward from future partners would predict emotional investment in ex-partners above and beyond perceived threat from future partners. Section H2 of Table 3 displays that simultaneous regression of social threat and reward from future partners revealed that perceived reward from future partners consistently negatively predicted emotional attachment to ex-partners and intentions to pursue ex-partners, and positively predicted intentions to find a new partner. Perceived threat from future partners was not a consistent predictor of any of the outcome variables. Once again, these effects remained controlling for negative breakup feelings and approach/avoidance goals.

#### *Interaction between social reward from ex-partners and future partners (H3)*

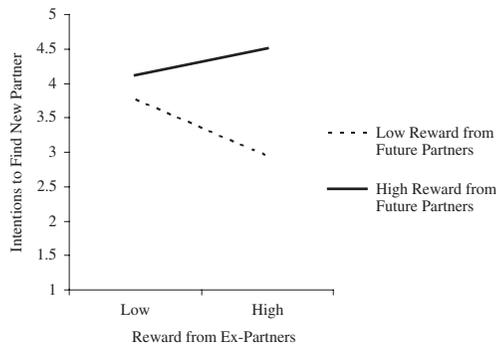
As can be seen in section H3 of Table 3, there was a consistent, significant interaction (Aiken & West, 1991) between perceptions of social reward from ex-partners and future partners. Figure 1 depicts the results of emotional attachment at  $-1$  and  $+1$  *SD* from the mean in Study 1A. The pattern of results in Figure 1 is essentially representative of all interactions predicting emotional attachment to ex-partners and intentions to pursue ex-partners, and thus only the results of Study 1A are graphed here.



**Figure 1.** Emotional attachment to ex-partners as a function of reward from ex-partners and future partners in Study 1A.

Simple effects tests were conducted for each significant interaction to explore the pattern of results. Standardized regression coefficients for each test can be found in the final section of Table 3. Simple effects tests for interactions predicting emotional attachment to ex-partners and intentions to pursue ex-partners consistently revealed that when ex-partners were perceived to be high in reward, reward from future partners was a negative predictor of emotional attachment to, and intentions to pursue, ex-partners. However, when ex-partners were perceived to be low in reward, emotional attachment to, and intentions to pursue, ex-partners were not consistently predicted by reward from future partners. Conceptualized differently, when future partners were expected to be low in reward, reward from ex-partners was a positive predictor of emotional attachment to ex-partners and intentions to pursue ex-partners. The same pattern was true, but to a lesser degree, for those who anticipated higher reward from future partners.

There was also a significant interaction between perceptions of social reward from ex-partners and future partners in predicting intentions to find a new partner (Figure 2). The pattern of this interaction suggested that for individuals who anticipated lower levels of social reward from future partners, intentions to find a new partner in the near future were negatively predicted by reward from ex-partners. However, reward from ex-partners



**Figure 2.** Intentions to find a new partner as a function of reward from ex-partners and future partners in Study 1B.

did not predict intentions to find a new partner among those who anticipated higher levels of reward from future partners. Among those who perceived greater reward from their ex-partner, reward from future partners positively predicted intentions to find a new partner in the near future. However, anticipated reward from future partners did not predict intentions to find a new partner for those who perceived less reward from their ex-partner.

### Discussion

The first hypothesis—that perceptions of social reward from ex-partners would predict longing for and intentions to pursue ex-partners over and above perceptions of social threat from ex-partners—was supported in Studies 1A and 1B. When regressed simultaneously, perceived social reward from an ex-partner was a positive predictor of emotional attachment and behavioral intentions to pursue ex-partners. In fact, perceived social threat was not consistently a significant predictor and, when it was a significant predictor, it predicted *greater* emotional attachment to an ex rather than less. Although it may be surprising that threat predicts greater longing for an ex-partner, it aligns with research on dependency regulation theory, which argues that increased closeness and vulnerability with romantic others activates goals of protecting oneself against social pain (Murray, Derrick, Leder, & Holmes, 2008). Such preventative goals promote hypervigilance to risks of

social threat. Therefore, the few associations between emotional attachment to ex-partners and perceived threat from ex-partners in the present research may reflect people's attempts to be mindful of the potential for hurt feelings and rejection in response to their expressions of longing and pursuit.

Hypothesis 2 was also supported in Studies 1A and 1B. Anticipating low social reward from future partners predicted emotional attachment to ex-partners, whereas anticipating high social threat from future partners was not a consistent predictor. Furthermore, as predicted in Hypothesis 3, those who anticipated low reward from future partners were more emotionally attached to, and had stronger intentions to pursue, rewarding ex-partners than those who anticipated high reward from future partners. Furthermore, when a rewarding ex-partner was available, anticipating low reward from future partners predicted weaker intentions to pursue new relationships compared to those who anticipated higher reward in the future. Simply put, emotional investment tended to be directed toward rewarding partners. When future partners were anticipated to lack in reward, rewarding ex-partners were more likely to be longed for and be intended targets of pursuit. When future partners were anticipated to be highly rewarding, participants more often intended to start relationships with them, even when their ex-partner was rewarding.

Although our hypotheses were supported among participants imagining their romantic futures, it is possible that our findings of attachment to an ex may be accounted for by a contrast between considering actual relationships (i.e., the ex) and anticipated relationships. In the absence of a specific individual for comparison, evaluations of an ex-partner may be skewed in a way that distorts the dynamics of attachment to an ex-partner. For instance, unknown future partners may be limited to abstract, higher level construals, producing more general expectations of reward such as, "My future partner will care for me." Known ex-partners, however, will have the capacity for concrete, lower level construals, potentially producing expectations of reward based on specific past experiences such as,

“My ex-partner cared for me when s/he listened after I had a fight with my friend.” Concrete construals predict weaker likelihood of delaying gratification than abstract construals (Fujita, Trope, Liberman, & Levin-Sagi, 2006), suggesting that lower level rewards are considered more immediately appealing. Reward from concrete ex-partners may thus appear more tangible and gratifying than reward from abstract future partners, contributing to stronger feelings of emotional attachment to the ex-partner. In part to account for the availability of concrete construals, participants in Study 2 considered the actual reward value of their *current* romantic partners. Evidence that individuals who have an unrewarding current partner remain particularly emotionally invested in rewarding ex-partners would provide strong support for the notion that individuals pursue social reward in our proposed hydraulic manner. Such evidence would suggest that not just any relationship will satisfy the need to belong but that rewarding relationships are particularly crucial for the fulfillment of belongingness needs.

## Studies 2A and 2B

### Method

#### Participants

To be eligible to participate in Study 2, individuals were required to be involved in a relationship at the time of the study and have had experienced a breakup at some point in their romantic history.

*Study 2A.* Eighty undergraduate students from the University of Toronto were recruited to participate for course credit, with 71 meeting all inclusion criteria. Participants ranged in age from 18 to 37 years old ( $M = 20.2$ ,  $SD = 4.0$ ). There were 14 males and 57 females. Participants had experienced their most recent breakup between 1 and 192 months prior to participation in the study ( $M = 23.9$  months prior,  $SD = 30.3$ ). The length of their past relationship ranged from 2 weeks to 108 months ( $M = 11.7$  months,  $SD = 16.2$ ). Of the 71 participants, 12 reported casually dating one person, and 59 reported

seriously dating one person. The length of current relationships ranged from 1 to 192 months ( $M = 19.0$  months,  $SD = 29.1$ ).

*Study 2B.* People in relationships were recruited using the same methods as in Study 1B. One hundred ninety-nine people began the study, with 112 meeting all inclusion criteria. There were 19 males, 92 females, and 1 unidentified, aged 18–61 years ( $M = 32.6$ ,  $SD = 10.3$ ). Participants had experienced their most recent breakup between 3 weeks and 252 months prior to participation in the study ( $M = 45.9$  months prior,  $SD = 49.1$ ). Participants reported on ended relationships that had lasted between 1 month and 120 months ( $M = 32.2$  months,  $SD = 28.9$ ). Of the 112 participants, 15 reported casually dating one person, 96 reported seriously dating one person, and 1 did not indicate her current relationship status. The length of current relationships ranged from less than 1 month to 251 months ( $M = 34.5$  months,  $SD = 42.6$ ). The majority of respondents were from Canada and the United States.

### Procedure and measures

The procedure for Study 2 was the same as Study 1, with the addition of the following measures.

*Relationship characteristics.* In addition to providing information about their most recently ended romantic relationship, participants reported the characteristics of their current relationship, such as the length of the relationship.

*Perceptions of social threat and reward in relationships.* As in Study 1, participants reported their perceptions of their ex-partners as socially threatening and rewarding using the STARS–Romantic Ex scale. However, instead of reporting their expectations of future partners’ social threat and reward, participants in Study 2 reported their perceptions of social threat and reward in their *current* romantic relationships (STARS–Romantic Current). This scale was developed by rephrasing the 15 factor-analyzed

items from the STARS–Romantic Ex and STARS–Romantic Future scales to refer to current romantic partners. Perceptions of social threat with current partners were assessed with items such as “I’m often concerned about my partner judging me negatively” and perceptions of social reward with current partners were assessed with items such as “My partner and I have a meaningful connection.”

*Intentions to maintain current relationship.* As an analog to the item completed by single individuals in Study 1B assessing intentions to find a new partner, Study 2B included a measure of intentions to maintain one’s current romantic relationship. The scale consisted of the following two items assessed on a scale from 1 (*not at all*) to 5 (*definitely*): “I intend to maintain a meaningful romantic relationship with my current partner” and “I intend to keep my current relationship going as long as possible” (Cronbach’s  $\alpha = .75$ ).

*Results*

Intercorrelations between variables in Studies 2A and 2B, respectively, can be found in Table 4. Standardized regression coefficients for analyses in Studies 2A and 2B can be found in Table 5.

*Social threat and reward from ex-partners (H1)*

As can be seen in section H1 of Table 5, when simultaneously regressed on emotional attachment to, and intentions to pursue, ex-partners, perceived social reward from ex-partners was a consistent positive predictor, whereas perceived social threat from ex-partners was not a significant predictor. However, neither threat nor reward from ex-partners predicted intentions to maintain one’s current relationship. These effects held when controlling for negative breakup feelings and approach/avoidance goals.

*Social threat and reward from current partners (H2)*

Section H2 of Table 5 displays that perceived social reward from current partners

**Table 4.** Intercorrelations between variables in Studies 2A and 2B

	Study 2A					Study 2B								
	1	2	3	4	5	1	2	3	4	5	6	7	8	9
1. Reward from ex-partner	—					—								
2. Threat from ex-partner	.34**	—				.23*	—							
3. Reward from current partners	-.31**	-.07	—			-.40***	-.08	—						
4. Threat from current partners	.26*	.28*	-.21	—		-.06	.22*	.04	—					
5. Emotional attachment to ex-partner	.58***	.38***	-.34**	.41***	—	.71***	.23*	-.52***	.04	—				
6. Negative feelings upon breakup	.23	.33**	-.16	.24*	.50***	.21*	.40***	-.17	.07	.30**	—			
7. Intentions to pursue ex-partner	—	—	—	—	—	.66***	.18	-.44***	.05	.74***	.12	—		
8. Approach goals	—	—	—	—	—	-.19*	-.07	.44***	.10	-.17	.10	-.18	—	
9. Avoidance goals	—	—	—	—	—	-.14	.11	.19*	.37***	.06	.18	-.15	.54***	—

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

**Table 5.** Standardized regression coefficients ( $\beta$ ) for analyses in Studies 2A and 2B

	Outcome variable			
	Emotional attachment to ex-partner		Intentions to pursue ex-partner	Intentions to maintain current relationship
	2A	2B	2B	2B
H1: Reward from ex-partner	.44***	.67***	.67***	-.10
Threat from ex-partner	.10	-.01	.03	-.10
Negative breakup feelings	.36***	.18*	-.01	-.05
Approach goals	—	.07	-.01	.41***
Avoidance goals	—	.04	-.05	-.03
H2: Reward from current partner	-.21*	-.53***	-.37***	.65***
Threat from current partner	.27**	.07	.16 <sup>†</sup>	-.01
Negative breakup feelings	.40***	.30***	.21*	-.03
Approach goals	—	.04	-.07	.07
Avoidance goals	—	-.15	-.24*	-.01
H3: Reward from ex-partner	.47***	.52***	.61***	-.01
Reward from current partner	-.23*	-.36***	-.21*	.65***
Negative breakup feelings	.31***	.14*	-.03	-.03
Approach goals	—	.03	.08	.07
Avoidance goals	—	-.04	-.06	-.01
Reward Ex $\times$ Current interaction	-.35**	-.38***	.02	.06
H3: Simple effects tests for interaction				
Slope of reward current at low reward ex	-.02	.11	—	—
Slope of reward current at high reward ex	-.35***	-.54***	—	—
Slope of reward ex at low reward current	.59***	.79***	—	—
Slope of reward ex at high reward current	.27*	.17*	—	—

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

was consistently a significant, negative predictor of emotional attachment to, and intentions to pursue, ex-partners. However, perceived social threat from current partners was not consistently a significant predictor of emotional attachment to, or intentions to pursue, ex-partners. Perceived social reward from current partners was also the only significant predictor of intentions to maintain one's current relationship.

*Interaction between social reward from ex-partners and current partners (H3)*

As can be seen in section H3 of Table 5, there was a significant interaction between social reward from ex-partners and current partners when predicting emotional attachment to ex-partners, but not intentions to pursue ex-partners. As can be seen in the simple effects tests in Table 5, the interaction for emotional attachment to ex-partners

consistently revealed that when ex-partners were perceived as more socially rewarding, reward from current partners was a significant, negative predictor of emotional attachment to ex-partners. However, reward from current partners was not a significant predictor of emotional attachment to ex-partners when ex-partners were perceived as less socially rewarding. Conceptualized differently, when current partners were perceived to be less socially rewarding, reward from ex-partners was a positive predictor of emotional attachment to ex-partners. A similar, yet weaker, effect emerged when current partners were perceived to be more socially rewarding.

Finally, only perceived reward from current partners predicted intentions to maintain their current romantic relationships. Moreover, the interaction between perceptions of reward from ex-partners and current partners was not significant.

#### *Overall exploratory analyses*

To give due consideration to the role of perceived threat in romantic investment, we examined all possible interactions between threat and reward from ex-partners and future/current partners across studies. The hypothesized interaction between perceptions of reward from ex-partners and perceptions of reward from future/current partners was the only interaction to produce consistent, significant results across all four studies. However, there were inconsistent patterns of significant interactions that emerged from these analyses. The interaction between threat from ex-partners and reward from ex-partners yielded significant results in Studies 1B and 2B, such that, controlling for negative breakup feelings, emotional attachment to ex-partners was strongest when ex-partners were *both* highly threatening and highly rewarding. However, these results were found only for the emotional attachment measure, and not for the measure of intentions to pursue ex-partners. There was also a significant interaction between perceptions of threat from ex-partners and perceptions of reward from future current partners in Studies 1A and 2B, such that, controlling for negative breakup feelings, emotional attachment to ex-partners was

stronger when ex-partners were perceived as more threatening and future/current partners were seen as less rewarding. This interaction replicated on the measure of intentions to pursue ex-partners in Study 2B. Although these interaction patterns should be kept in consideration when interpreting the results of the present research, they will not be a primary focus of our discussion due to the inconsistent results across the four studies.

#### *Discussion*

The results of Studies 2A and 2B supported Hypothesis 1. Stronger perceptions of social reward from an ex-partner significantly predicted investment in the ex-partner, while perceptions of social threat from the ex-partner did not. Hypothesis 2 was also supported. Perceiving lower social reward from current partners predicted emotional attachment to, and intentions to pursue, ex-partners, whereas perceiving higher social threat from current partners was not a consistent predictor of investment in ex-partners. In further support of the role of reward in romantic investment, intentions to maintain one's current relationship were predicted by the social reward value of the current partner, above and beyond threat.

Hypothesis 3 was largely supported in Studies 2A and 2B. Like single individuals in Study 1, dating participants were more emotionally attached to rewarding ex-partners when they felt low reward in their current relationship than when they felt high reward. However, the reward value of a current partner did not predict emotional attachment to ex-partners when ex-partners were not perceived to be socially rewarding. Although the interaction between reward from current partners and ex-partners did not reach significance when predicting behavioral intentions to pursue an ex-partner, the pair of main effects did leave those perceiving high reward in an ex and low reward in a current partner with the strongest intent to pursue the ex.

The results of Study 2 supported our hypotheses and largely replicated the results of single participants in Study 1. The general replication of the results of Study 1 among

individuals currently involved in relationships suggests that the link between perceptions of social reward and emotional investment in past romantic partners generalizes to those in current relationships. Thus, it appears that not just any relationship will suffice to satisfy the need to belong. If a relationship is low in potential for intimate connection, individuals appear to orient themselves toward other opportunities that have potential to satisfy that unfulfilled need for intimacy and closeness. Furthermore, the data from Study 2 suggest that the results of Study 1 cannot be attributed to qualitative differences in considering an abstract future partner compared to specific ex-partners.

## General Discussion

The four studies reported in this article support the notion that perceptions of opportunities for intimacy and connection play an important role in predicting emotional investment in romantic relationships above and beyond perceptions of rejection threat. Perceptions of social reward from ex-partners, future partners, and current partners predicted longing for ex-partners, and intentions to pursue ex-partners, even when accounting for perceptions of social threat. Furthermore, people experienced the greatest longing for rewarding ex-partners when future or current partners were seen as falling short in providing social reward. The active pursuit of rewarding ex-partners in the absence of reward from alternative partners suggests that needs for intimate connection may be subject to substitution: When perceived levels of intimacy potential in a relationship are low, individuals may be motivated to seek intimacy and closeness elsewhere. Put simply, these findings suggest that an ex-partner seen to provide high potential for intimacy attracts emotional attachment and pursuit, particularly in the absence of alternative sources of intimate connection. However, the presence or anticipation of intimacy in alternative relationships helps to ease these feelings to some degree. Moreover, these findings held when controlling for negative feelings about the breakup and participants' goals of

approaching positive outcomes and avoiding negative outcomes in their close relationships. The present research suggests that although concerns about the threat of rejection may play an important role in restraining romantic investment, perceived opportunities for intimate connection may play a role above and beyond threat in impelling romantic investment.

The present research provides an interesting extension of dependency regulation theory (Murray et al., 1998, 2006) insofar as lacking reward in one's current relationship may be experienced as punishing due to frustration or disappointment. Although dependency regulation theory focuses on negative evaluation as the punishing stimulus restraining emotional investment in romantic partners, RST argues that missing out on expected reward is experienced as punishing and thus promotes avoidance motivation (Gray & McNaughton, 2000). Self-protective motivations may therefore become activated in the absence of expected or hoped-for connection with a romantic partner. Thus, although the present research largely highlights the role of social reward in impelling emotional investment, we believe an increased focus on the role of social rewards in relational processes can also add to an understanding of those forces that restrain such investment.

The regulation of romantic investment based on perceptions of social threat and reward sheds light on important aspects of measurement tools in relationship science designed to assess quality of relationships and motivations to invest. For instance, much research has demonstrated that decisions to maintain relationships are strongly predicted by perceptions of the quality of alternative relationships. When superior outcomes could be achieved outside of a current relationship, satisfaction and commitment in the relationship decline (e.g., Le & Agnew, 2003; Rusbult, Martz, & Agnew, 1998). Whether an alternative is perceived as high quality because it is rewarding or nonthreatening has not previously been made clear. In fact, methodological assessments of quality of alternatives tend to incorporate items assessing both levels of social threat (e.g.,

“My needs for security [feeling trusting, comfortable in a stable relationship, etc.] could be fulfilled in alternative relationships”; Rusbult et al., 1998), and levels of social reward (e.g., “My needs for intimacy [sharing personal thoughts, secrets, etc.] could be fulfilled in alternative relationships”; Rusbult et al., 1998). The current research suggests that it is the rewarding, more so than the non-threatening, aspects of alternatives that are likely to undermine relationship commitment. Thus, the precision of measurement tools designed to predict important investment outcomes may be improved by distinguishing the unique roles of threat and reward perceptions.

### *Strengths, limitations, and future directions*

Although there are limitations to consider when interpreting the results of the present research, there are a number of strengths that highlight the novelty and validity of this research. The present research sheds light on an important, yet commonly overlooked, phenomenon in the regulation of romantic investment—namely, the role of perceived intimacy potential from romantic partners. The simultaneous prediction of romantic investment decisions based on intimacy potential and rejection risks allows for a novel comparison of independent motivational sensitivities (Gable & Strachman, 2008; Gray & McNaughton, 2000). An additional strength of the present research is the relative diversity of participants across the four studies. For each hypothesis, we explored our hypotheses with a sample of undergraduate students as well as a sample of community members. Moreover, we sampled both single and coupled individuals from these groups. The replication of our findings across these diverse samples lends support to the generalizability and external validity of the role of perceived intimacy potential in romantic investment decisions.

The primary limitation to the present research, however, is the reliance on exclusively correlational data. Although the findings consistently replicated across four studies, we cannot conclusively determine causal relationships between perceived threat/reward and romantic investment. We have argued that

perceptions of social reward result in more positive feelings and intentions toward ex-partners. This suggestion implies that changes in perceived intimacy potential may result in changes in feelings for ex-partners: that individuals in relationships may be more likely to turn to ex-partners as their current relationship quality declines, or that single individuals who see a future barren of intimacy may cling to an ex. However, the alternative causal explanation is that emotional attachment to an ex-partner may motivate pining individuals to engage in positive illusions such that they exaggerate ex-partners' social reward potential and derogate the intimacy potential of future or current partners. This suggestion implies that changes in attachment to ex-partners may result in changes in perceived reward potential of both ex-partners and alternative partners.

Although both causal explanations are intuitively possible, and neither can be corroborated or disconfirmed in the present research, recent research supports our proposed direction of causality. Induced optimism about future romantic partners has been shown to decrease emotional attachment to ex-partners (Spielmann et al., 2009), suggesting that feelings toward partners other than one's ex can play a causal role in emotional investment in an ex-partner. Of course, this experimental evidence does not exclude the possibility of a feedback loop, such that perceptions of reward influence romantic investment, which in turn influences reward perceptions. The direction of causation between intimacy potential and relational investment should be better determined through further experimental and longitudinal research. For example, making salient memories of strong connection with the ex (vs. memories of failure to connect) may lead to changes in attachment to that past partner. Moreover, declines over time in intimacy from current partners may predict increased longing for rewarding ex-partners. In any case, all interpretations of the current data suggest a crucial role for reward, over and above threat, in relational investment. Thus, despite the limitations in our ability to pinpoint causality, the present research suggests that there is something unique about

the connection between intimacy potential and romantic investment above and beyond desires to avoid rejection.

Another limitation to the present research is that the role of social threat in relationship investment decisions may be hidden. It is possible that highly threatening partners are selected out rather quickly, or may not become relationship partners in the first place. Partners low in intimacy potential, on the other hand, may get selected out more slowly, only once relationships have had time to form and develop (e.g., Altman & Taylor, 1973). Individuals are functionally attuned to detecting the potential for threat (Kerr & Levine, 2008), but little is known about the ease of detecting the potential for connection with others. It may be that threat is easier to detect than reward (e.g., Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001), leading to relatively less partner selection of highly threatening mates but relatively frequent selection of less rewarding mates. When it comes to established relationships and those relationships gone by, the present research clearly suggests that the perceived potential for intimate connection predicts emotional investment above and beyond perceived risks of rejection. However, the fact that participants were ever involved in relationships with these partners suggests that the partners under consideration likely did not represent the most threatening partner options possible.

Although the results of the present research held when accounting for approach/avoidance goals in close relationships, it should be noted that the threat/reward scales entailed a greater level of specificity than did the approach/avoidance scales. Items on the threat/reward scales referred to specific relationship targets, whereas items on the approach/avoidance scales referred to close relationships in general. Greater specificity of attitudes has been shown to produce greater congruence between attitudes and behavior (e.g., Weigel, Vernon, & Tognacci, 1974). In the present research, perceived intimacy potential was a stronger predictor of emotional investment than fears of rejection, above and beyond general social approach/avoidance

goals specific to ex-partners, future partners, and current partners may provide greater insight into the unique contributions of threat/reward perceptions in relation to social goals and romantic investment.

Finally, although the predictive validity of the STARS–Romantic scales is strong, it is possible that our method of scale development may have contributed to additional noise in each individual scale's predictive abilities. To create scales that would apply equally across contexts (i.e., ex-partners and future partners), we conducted concurrent exploratory factor analyses, selecting items that loaded relatively well on both contexts, rather than selecting the highest loading items for each context individually. Therefore, although the scales presented here are highly predictive of emotional investment in relationships and provide standardized assessments to compare across different relationship partners, future research may need to develop more precise, context-specific STARS–Romantic measures to be used in separate relational domains. We suggest, therefore, that the use of any individual STARS scale developed herein may require a check on the fit of the items to that particular context for the highest levels of predictive validity.

### *Conclusions*

The present research demonstrates that, above and beyond perceived risks of rejection in close relationships, perceived opportunity for intimate connection with ex-partners and alternative romantic partners is an important factor in predicting the regulation of romantic investment. When the potential for rejection and the potential for intimacy are considered together, perceived intimacy potential is consistently a significant predictor of emotional attachment and pursuit of ex-partners over and above perceived threat. Furthermore, ex-partners perceived as having high potential for meaningful connection are especially difficult to get over when current or future partners fall short in satisfying needs for intimacy and closeness. These findings suggest that in addition to relationships marked by safety from hurt and rejection, the need to belong is

fulfilled by romantic relationships marked by intimacy and meaningful connection.

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**Appendix**  
**Table A1.** *Social threat and reward scales (STARS)–Romantic*

Ex-partners	Future partners	Current partners
Think of your relationship with your ex-partner as it currently stands. Now please respond to the following items <i>imagining that the two of you decided to renew your relationship.</i>	Please respond to the following items concerning <i>your future romantic relationships.</i>	Please respond to the following items concerning <i>your current romantic partner.</i>
<p>3. If we renewed our relationship, I would worry about what my partner thought about me.</p> <p>4. If my partner didn't approve of something I did, I would feel upset.</p> <p>8. I would want to avoid saying anything foolish around my ex if we got back together.</p> <p>10. If I said something dumb to my partner after we got back together, it would really bother me.</p> <p>11. I would be concerned about my partner judging me negatively if we renewed our relationship.</p> <p>12. If we got back together, my partner would want to leave me because of my faults.</p>	<p>Threat items</p> <p>3. I'm worried what a new partner would think about me.</p> <p>4. If a future partner doesn't approve of something I did, I will feel upset.</p> <p>8. I want to avoid saying anything foolish to future romantic partners.</p> <p>10. If I said something dumb to a partner, it would really bother me.</p> <p>11. I'm concerned about being judged negatively in future relationships.</p> <p>12. I think future partners will want to leave me because of my faults.</p>	<p>3. I worry about what my partner thinks about me.</p> <p>4. If my partner doesn't approve of something I do, I feel upset.</p> <p>8. I try to avoid saying anything foolish to my partner.</p> <p>10. If I say something dumb to my partner, it really bothers me.</p> <p>11. I'm often concerned about my partner judging me negatively.</p> <p>12. I sometimes feel my partner doesn't want to be with me because of my faults.</p>

**Appendix**  
**Table A1.** *Continued*

	Reward items	
1. I would love my partner a lot if we got back together.	1. I'm sure I will find a partner that I love a lot.	1. I love my partner a lot.
2. It would be interesting to learn more about my partner if we were together again.	2. It will be interesting to get to know a new partner better.	2. It's interesting to learn more about my partner.
5. I see the renewal of our relationship as an opportunity for personal growth.	5. I see a new relationship as an opportunity for personal growth.	5. Being with my partner gives me opportunities for personal growth.
6. I wouldn't expect to get much out of our relationship. (R)	6. I don't expect to get much out of a new relationship. (R)	6. I don't expect to get much out of our relationship. (R)
7. I would look forward to sharing things about myself if we got back together.	7. I look forward to sharing things about myself with a new partner.	7. I enjoy sharing things about myself with my partner.
9. I think we could develop a meaningful connection if we renewed our relationship.	9. I think I could develop a meaningful connection with another partner.	9. My partner and I have a meaningful connection.
13. Renewing our relationship would provide me with many fun opportunities.	13. I'm sure I will find someone who provides me with many fun opportunities.	13. Being with my partner provides me with many fun opportunities.
14. There's a good chance that if we renewed our relationship I would have strong, positive feelings for my partner.	14. There's a good chance I will feel strong, positive feelings for another person.	14. I have strong, positive feelings for my partner.
15. I think that renewing our relationship would bring us closer than I've ever felt to somebody.	15. I hope to feel closer to a new partner than I've ever felt to somebody.	15. I feel closer with my partner than I've ever felt to somebody.