

# Assessment of Relationship-Specific Incentive and Threat Sensitivities: Predicting Satisfaction and Affect in Adult Intimate Relationships

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Self-report scales assessing relationship-specific incentive and threat sensitivity were created. Initial tests of factor structure and associations with relationship quality were conducted in a sample of persons in intimate relationships (Study 1). Associations with conceptually related measures were examined to determine convergent and discriminant validity in a sample of dating couples (Study 2). Cross-validation of the factor structure was established in engaged couples (Study 3) and in newlywed couples (Study 4). In Study 4, couples also engaged in a laboratory-based threat task (discussion about a significant marital problem) and incentive task (discussion about loving aspects of the partner/marriage). Relationship incentive sensitivity predicted higher positive affect after the incentive task for both husbands and wives. Relationship threat sensitivity predicted greater anxiety in response to the threat laboratory task for wives only. Implications of approach and avoidance motivations in close relationship processes and outcomes are discussed.

*Keywords:* close relationships, approach, avoidance, motivational sensitivities, marriage

The study of intimate relationships has been approached from diverse theoretical frameworks. For example, close relationships have been conceptualized in terms of attachment processes, in which the other person serves as a secure base and safe haven for the self (Collins & Feeney, 2000; Hazan & Shaver, 1987). Close, intimate relationships have also been conceptualized as involving a set of investment-related factors that lead to decisions to stay in a relationship or leave (Rusbult, Drigotas, & Verette, 1994). In that framework, satisfaction with one's relationship, the quality of alternatives, and the degree of one's investment in a relationship (i.e., the cost of leaving) are determinants of commitment, which in turn is a strong predictor of relationship stability.

The individual's experience in an intimate relationship can also be construed in terms of motivational processes that play out in the context of that relationship. One might focus on specific motive content, such as the desire for intimacy (McAdams, 1989) or desire for power (Winter, 1993). Alternatively, one might organize a

motivational perspective around tendencies to approach relationship-related rewards and avoid relationship-related punishments (e.g., Rolls, 2005). The latter approach to close relationships is taken here. From this point of view, being in a close relationship such as marriage involves continuing or a recurrent approach of desired relationship outcomes (e.g., intimacy) and avoidance of threatening outcomes (e.g., conflict).

## Approach and Avoidance Systems

There is growing interest in how individual differences bearing on approach and avoidance relate to diverse aspects of human functioning (Elliot, 2008). Contemporary interest in generalized approach and avoidance motivational sensitivities traces in part to Gray (1987, 1990), who posited two partially distinct neurobiological systems. The behavioral activation or approach system (BAS) is an appetitive system (Depue & Iacono, 1989; Fowles, 1988); it leads the organism to approach incentives and produces positive feelings in response to incentive cues. A relatively independent behavioral inhibition system (BIS) is an aversive system; it regulates efforts to avoid threats and punishment (Gray, 1987) and produces feelings of anxiety in response to threat cues.

People differ in the sensitivity (i.e., responsiveness) of each system. Indeed, BIS and BAS sensitivities may represent the core of Neuroticism and Extraversion, respectively (Carver, Sutton, & Scheier, 2000; Elliot & Thrash, 2002; Gray, 1990). Persons with sensitive approach systems are more likely to pursue incentives and be emotionally responsive to reward cues than persons with less sensitive approach systems. Persons with sensitive avoidance systems are more likely to evade threats and be emotionally responsive to punishment cues than persons with less sensitive avoidance systems (Carver & White, 1994; Gray, 1990).

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### Domain-Specific Motivational Tendencies

Gray's (1990) analysis portrayed general incentive and threat systems. Some have also suggested there may be more specialized *social* incentive and threat systems, which partially overlap with but are partially separate from the general systems. For example, Depue and Morrone-Strupinsky (2005) distinguished agency motivation from affiliation motivation. Both are approach related, but they differ in the class of outcomes to which they are directed. Agency is motivation toward such goals as achievement; affiliation is motivation toward development and maintenance of social bonds. In the same vein, Panksepp (1998) argued that social connection is evolutionarily such an important process that partially distinct mechanisms evolved to support it, involving distinct neurobiological structures and pathways (Carter, 1998; Insel & Fernald, 2004).

The idea that behavioral tendencies have varying specificity need not rely solely on neurobiological findings. A case can also be made that somewhat distinct mental structures develop via learning to organize behavior in different domains. Thus, many psychological constructs incorporate varying levels of specificity. For example, attitudes range from very specific to very general; prediction from attitude to behavior is best when the level of specificity of one matches that of the other (e.g., Heberlein & Black, 1976; Weigel & Newman, 1976). Broad traits have narrower facets, and behavior is often better predicted by matching the specificity of the trait to that of the behavior (e.g., Paunonen, 1998; Schimmack, Oishi, Furr, & Funder, 2004). Self-esteem similarly is multifaceted, with the facets only moderately related to one another (e.g., Marsh, 1993).

In summary, it seems plausible that motivational processes vary in their level of specificity (whether by neurobiology or by learning). It also seems likely that better prediction will come from focusing on the motivational sensitivity that matches the outcome's specificity.

### Approach and Avoidance in the Context of Close Relationships

Reasoning involving approach and avoidance sensitivities has already been applied to some extent in the field of close relationships. The basic idea is that sensitivity to relationship incentives produces an approach orientation to relationships (Gable, 2006). This orientation is characterized by positive feelings of engagement and happiness when relationship rewards are experienced. A heightened sensitivity to relationship threats yields an avoidance orientation, characterized by worry and vigilance. This orientation is not conducive to relationship harmony.

BAS sensitivity and related constructs have been linked to indices of positive relationship functioning such as closer friendships (Berry, Willingham, & Thayer, 2000), secure adult attachment (Carver, 1997), and the tendency to respond to relationship difficulties in a solution-focused manner (Meyer, Olivier, & Roth, 2005). BIS sensitivity and related constructs have been related to problematic relationship functioning, such as distancing oneself from a partner after a negative event (Bolger & Zuckerman, 1995), tending to engage in destructive behaviors (Berry & Willingham, 1997), and ambivalent attachment (Carver, 1997; for a more extensive review, see Simpson, Winterheld, & Chen, 2006).

The studies just described used global BIS and BAS sensitivities, assessed by a self-report measure called the BIS/BAS scales (Carver & White, 1994), to predict relationship outcomes. The global BIS/BAS scales, however, do not focus on close relationships as sources of incentives and threats (as the concepts of BIS and BAS were not domain specific). The items of the scales pertain to rewarding and threatening experiences "in general." As a result, they may lack sensitivity in predicting the narrower domain of close relationship behaviors and outcomes.

This may help account for inconsistencies in research using global BIS/BAS scales (or conceptually related measures) to predict relationship outcomes (e.g., Karney & Bradbury, 1995; Reis, Capobianco, & Tsai, 2002; Simpson et al., 2006). That is, sensitivity to rewards *in general* may not imply sensitivity to the rewards that are particular to close relationships. In the same way, sensitivity to threats *in general* may not imply sensitivity to threats that are particular to close relationships. It may be, therefore, that research on close relationships would benefit from having measures of incentive and threat sensitivity that focus on relationship-specific incentives and threats.

### Social Approach and Avoidance

Some steps have already been taken in that direction. Gable (2006) proposed a hierarchical model in which social approach motives and social avoidance motives mobilize the creation of approach and avoidance goals, which in turn foster positive and negative relationship outcomes, respectively. Gable measured social approach motivation with Jackson's (1974) Hope for Affiliation scale and social threat motivation with Mehrabian's (1976) Fear of Rejection scale. As she anticipated, hope for affiliation predicted the holding of social approach goals, and fear of rejection predicted the holding of social avoidance goals.

Elliot, Gable, and Mapes (2006) also developed a measure to assess more systematically social approach and avoidance goals in friendships. Hope for affiliation predicted the holding of friendship approach goals, and fear of rejection predicted the holding of friendship avoidance goals. In turn, friendship approach goals predicted more relationship satisfaction and positive relationship events. Greater friendship avoidance goals predicted more loneliness, negative relationship events, and greater reactivity to negative relationship events.

### Measuring Relationship Incentive and Threat Sensitivities

These studies suggest that social approach and avoidance motivations influence relationship outcomes. However, the measures of hope for affiliation and rejection sensitivity pertain to sociability in general, as opposed to intimate relationships. They deal with social connections in general, but not the specific class of romantic relationships. Because much close relationship research has this narrow focus, we believe a measure aimed at incentives and threats in the context of romantic relationships would have particular utility (see also Reis et al., 2002).

We expect a measure of sensitivity to relationship-specific rewards to predict individual differences in the experience of high-arousal, positive-valenced emotional responses to positive sharing in a relationship. We expect a measure of sensitivity to

relationship-specific threats to predict individual differences in anxiety in response to relationship conflict. To the extent that rewards and conflicts, respectively, occur in close relationships, these sensitivities should also influence perceptions of the quality of the relationship and satisfaction with the relationship. Relationship-specific incentive sensitivity should relate to high engagement in relationships, particularly when they are running smoothly. Relationship-specific threat sensitivity should relate to avoidance or withdrawal from relationships that are more conflicted.

## Overview

In this article, we describe the development, validation, and substantive application of a measure of relationship incentive sensitivity (RIS) and relationship threat sensitivity (RTS) in the context of adult intimate relationships.<sup>1</sup> In Study 1, we developed items and evaluated their factor structure in a sample of individuals in a romantic relationship. In Study 2, we began convergent and discriminant validation by examining associations with other measures in a sample of romantic couples. In Study 3, we cross validated the measure's factor structure and examined links with relationship quality in a sample of couples engaged to be married. In addition to yet further cross-validation in a sample of newlywed couples, in Study 4 we examined how the scales predicted affect among marital partners after two laboratory tasks. One task aimed at creating an aversive relationship experience (a "conflict" discussion) and one aimed at creating an appetitive relationship experience (a "love" discussion).

## Study 1

We began by writing variants of the items of Carver and White's (1994) BIS/BAS scales to reflect relationship-specific incentives and threats. For example, we changed "I go out of my way to get things I want" to "I go out of my way to be connected to my romantic partner." We then administered these items to pilot samples of dating individuals. We completed several iterations of pilot testing as we changed or omitted items that performed poorly in exploratory factor analyses (EFAs) and wrote new items. By testing and revising items across pilot studies and observing recurrent evidence of an EFA-based two-factor solution, we more systematically derived five RTS (threat) items and six RIS (incentive) items for further evaluation.

The Carver and White (1994) BIS items reflect anxiety proneness, based on Gray's (1987) having labeled the trait arising from BIS function as anxiety. The BIS items formed one scale bearing on threat or punishment sensitivity (e.g., "If I think something unpleasant is going to happen, I usually get pretty 'worked up'"). The relationship-specific threat-sensitivity items similarly formed a single factor.

With respect to BAS, the Carver and White (1994) measure has three empirically derived scales, which reflect different ways for sensitivity of the incentive system to be manifested, as had been portrayed by various writers. These scales reflect active seeking out of incentives (Fun-seeking, e.g., "I will often do things for no other reason than that they might be fun"), energetic pursuit of incentives (Drive, e.g., "When I'm doing well at something, I love to keep at it"), and positive reactions to incentives (Reward re-

sponsiveness, e.g., "When I get something I want, I feel excited and energized"). Although the three BAS scales invariably are positively correlated, the correlations generally are only moderate in strength.

In contrast to this diversity, our efforts to create a measure of relationship-specific approach sensitivity yielded a single scale. There are at least two reasons for this. First, some of the revised items appeared to foster more than one interpretation; omitting these items resulted in blurring of the distinction between Drive and Reward responsiveness (which some researchers merge as a second-order factor in the BIS/BAS scales; Smillie, Jackson, & Dalgleish, 2006). Second, the Fun-seeking items were particularly difficult to rewrite for relationships in a fashion that did not pull for near-universal agreement. As it happens, evidence has emerged that this particular BAS scale incorporates a quality of impulsiveness in addition to approach motivation (Zelenski & Larsen, 1999). Such evidence has led some to conclude that the Fun-seeking scale should be viewed as less pure a measure of incentive sensitivity than the other BAS scales (Smillie et al., 2006). Given this state of the literature, omission of parallel items from the relationship-specific measure is appropriate.

In addition to testing the internal factor structure of the item set in Study 1, we also related the scales to relationship satisfaction. Presuming that these relationships are yielding rewards, we expected greater incentive sensitivity to predict greater satisfaction. Presuming that the relationships are not without threat, we expected greater threat sensitivity to predict less satisfaction.

## Method

In group sessions, 207 undergraduates (64% women) with a median age of 20 who reported being currently involved in romantic relationships (but were recruited as individuals, not as couples) completed the Relationship Incentive and Threat Sensitivity Scales (RITSS). Recruitment was for a study of "experiences in relationships." Sixty-five percent of the respondents reported being in their relationships for 9 or more months. RITSS items were rated on a 4-point Likert-type scale ranging from 1 (*very true for me*) to 4 (*very false for me*). Responses were scored so that higher scores indicated greater endorsement of the motivation the item related to (i.e., incentive or threat). Participants generally reported high levels of both relationship-specific threat sensitivity ( $M = 15.35$ ,  $SD = 2.90$ , range = 7–27) and relationship-specific incentive sensitivity ( $M = 20.27$ ,  $SD = 2.96$ , range = 9–31).

These respondents also completed two items tapping relationship quality. They first rated satisfaction with the romantic relationship on a 6-point Likert-type scale ranging from 0 (*extremely*

<sup>1</sup> The Carver and White (1994) BIS/BAS scales were grounded in Gray's (1987, 1990) theory. Gray and McNaughton (2000) later revised that theory. In the revision, inhibition instead of threat sensitivity is the core feature of the BIS. In the new view, the BIS responds to conflict—of any kind—by inhibiting action and searching for information; a different system altogether is sensitive to threat. Thus, use of the term *BIS* from the Gray and McNaughton (2000) point of view differs from previous use. This change obviously creates the potential for confusion. To minimize this, despite the fact that our model was the BIS/BAS scales, we decided to label the new scales in terms of incentive and threat, and avoid using the acronyms BIS and BAS.

unhappy) to 6 (*perfectly happy*). Participants reported relatively high levels of relationship satisfaction ( $M = 4.23$ ,  $SD = 1.21$ , range = 0–6). The second item was derived from the Inclusion of Other in the Self scale (Aron, Aron, & Smollan, 1992), which is a single-item measure of closeness and interconnectedness. Because these items were strongly correlated ( $r = .56$ ,  $p < .01$ ), and both were on 7-point scales, they were averaged to create a measure where higher scores reflected greater relationship quality.

## Results and Discussion

**Confirmatory factor analyses (CFAs).** Structural equation modeling (SEM), as implemented through Mplus software (Muthén & Muthén, 2004), was used to estimate all models. SEM provides several advantages over more traditional data analytic techniques, including a reduction of measurement error, the ability to test for relationships among variables with latent constructs, and treatment of missing data assuming they are missing at random. Both EFA and CFA are relatively robust to violations of normality (Gorsuch, 1983). However, in order to address nonnormality in a number of outcome variables, we used the Satorra-Bentler estimation method. This approach provides maximum likelihood parameter (MLM in Mplus) estimates and a mean-adjusted chi-square that are robust to violations of normality (Muthén & Muthén, 2004). Factor loadings and path coefficients reported here represent standardized values (see Table 1).

We conducted CFAs to verify that the items identified by earlier EFAs loaded adequately on the Relationship Incentive Sensitivity (RIS) and Relationship Threat Sensitivity (RTS) factors in this sample.<sup>2</sup> First, we tested two separate single-factor models to determine whether the individual factors were consistent with the data. A model in which the five items assessing relationship-specific avoidance motivation were allowed to load on a single RTS factor resulted in fair model fit,  $\chi^2(5, N = 207) = 11.62$ ,  $p = .04$ ; comparative fit index (CFI) = .96; root-mean-square error of approximation (RMSEA) = .08, and all factor loadings were positive and significant (see Table 1). A model in which the six items assessing relationship-specific approach motivation were allowed to load on a single RIS factor provided good fit to the data,  $\chi^2(9, N = 207) = 14.26$ ,  $p = .11$ ; CFI = .98; RMSEA = .05, and all factor loadings were positive and significant (see Table 1). Models with at least 150 participants are considered stable, with factor loadings in the .60 range (Guadagnoli & Velicer, 1988). The factors showed adequate internal consistency (RTS  $\alpha = .79$ ; RIS  $\alpha = .85$ ). We also evaluated the fit of separate single-factor models for men versus women in this sample. A single RTS factor showed good fit for both men and women: men,  $\chi^2(5, N = 75) = 8.14$ ,  $p = .15$ ; CFI = .96; RMSEA = .08; women,  $\chi^2(5, N = 132) = 5.58$ ,  $p = .47$ ; CFI = .99; RMSEA = .03, respectively. A single RIS factor also showed good fit for both men and women: men,  $\chi^2(9, N = 75) = 10.71$ ,  $p = .30$ ; CFI = .99; RMSEA = .05; women,  $\chi^2(9, N = 132) = 14.21$ ,  $p = .47$ ; CFI = .97; RMSEA = .06, respectively.

In order to further evaluate the factor structure of the RITSS for the whole sample, the two factors were simultaneously specified within the same model, and we compared the two-factor model with a single-factor model. Superior fit in the two-factor model as compared with a single-factor model would indicate the constructs are relatively distinct. The two-factor model provided good fit to

the data,  $\chi^2(43, N = 207) = 61.65$ ,  $p > .05$ ; CFI = .96; RMSEA = .05, and all factor loadings were significant and in the expected direction (RIS loading range: .55–.84; RTS loading range: .54–.77). Combining the RTS and RIS factors into a single factor caused significant deterioration in model fit,  $\Delta\chi^2(1) = 92.84$ ,  $p < .0001$ , suggesting the two factors are best kept separate. However, there was also a significant covariation between RTS and RIS in the latent two-factor model ( $r = .46$ ,  $p < .01$ ), indicating the factors are not entirely distinct in this sample.<sup>3</sup> It may be that the covariation between RTS and RIS is due to shared method variance or some characteristic that is specific to this sample. This relationship should be examined carefully in other samples, and we did so in the other studies that follow.

We also evaluated the fit of the two-factor model for men versus women in this sample. For men, the two-factor model demonstrated adequate fit to the data,  $\chi^2(43, N = 75) = 51.13$ ,  $p = .18$ ; CFI = .97; RMSEA = .04, and the corresponding correlation between RIS and RTS latent factors was .40. For women, the two-factor model demonstrated good fit to the data,  $\chi^2(43, N = 132) = 56.29$ ,  $p = .08$ ; CFI = .95; RMSEA = .06, and the corresponding correlation between latent factors was .51.

**Predicting relationship quality.** Next, we examined associations between RTS and RIS scores and relationship quality. A model was specified in which a manifest measure of relationship quality was regressed on RTS and RIS simultaneously across men and women in the sample. As predicted, RIS related to reports of relationship quality among both women ( $\beta = .28$ ,  $p < .01$ ) and men ( $\beta = .59$ ,  $p < .01$ ). RTS was not related to relationship quality either for men ( $\beta = -.05$ , *ns*) or for women ( $\beta = -.06$ , *ns*). It is likely that this null finding reflects the fact that these participants were in relatively happy relationships (the mean of roughly 4 corresponds to “happy” on the scale). They likely were not experiencing sufficient threat in their relationships for threat sensitivity to be a factor in their ratings of relationship quality.

## Study 2

In this study, we examined convergent and discriminant validity through correlations with measures of theoretically relevant constructs. Specifically, we examined associations of the RTS and RIS scales with measures of reward- and punishment-related motivations in friendships, adult attachment dimensions, rejection sensitivity,

<sup>2</sup> It is important to acknowledge, however, that although a pattern of loadings in an EFA may indicate a two-factor solution, positing that same two-factor solution in a CFA may not result in good fit to the same data. This is because despite strong loadings on a hypothesized factor, the remaining cross-loading of items on other factors can combine to contribute to poor model fit (Van Prooijen & van der Kloot, 2001). Thus, although initial EFAs may be informative, validation and cross-validation of factor structures with CFA will ultimately be most useful.

<sup>3</sup> The scales are expected to be relatively independent, but the key point is that they should not be strongly inversely related. That is, incentive and threat sensitivities are not seen as opposite ends of a continuum, but as separate dimensions. The BIS/BAS BIS scale typically correlates positively in the .3 range with Reward responsiveness, to which it has the greatest conceptual parallelism (both concern emotional reactions to outcomes, albeit different outcomes). Some degree of positive correlation is not a cause for alarm; whether or not it has substantive meaning is uncertain.

Table 1  
Factor Loadings for RIS/RTS Items Across Three Studies

Scale item	Study 1: Undergraduates ( <i>N</i> = 207)		Study 3: Engaged couples ( <i>N</i> = 164)		Study 4: Newlywed couples ( <i>N</i> = 110)	
	RIS	RTS	RIS	RTS	RIS	RTS
1. I go out of my way to be connected to my romantic partner.	.55		.39/.39		.53/.53	
3. When things are going well in my romantic relationship, it draws me to the relationship even more.	.68		.30/.45		.49/.72	
5. When I want something good to happen in my romantic relationship, I go all-out to make it happen.	.78		.60/.62		.62/.68	
7. If I see a chance to have something good happen in my romantic relationship, I move on it right away.	.84		.73/.62		.74/.97	
9. When I see an opportunity to enhance my romantic relationship, I get excited about doing it.	.79		.74/.55		.79/.91	
11. When I see the possibility of something good happening in my relationship with my romantic partner, I try very hard to make it happen.	.84		.63/.76		.67/.58	
2. Criticism or scolding from my romantic partner hurts me quite a bit.		.61	.53/.44		.50/.54	
4. I feel worried or upset when I think or know my romantic partner is angry at me.		.77	.59/.49		.66/.71	
6. If I think something unpleasant is going to happen in my romantic relationship I usually get pretty "worked up" and upset.		.71	.62/.76		.50/.65	
8. I feel worried when I think I've acted poorly in my romantic relationship.		.72	.64/.42		.66/.67	
10. I worry about making mistakes in my romantic relationship.		.54	.65/.47		.44/.37	

*Note.* In Studies 3 and 4, values for male partners are reported first, and values for female partners are reported second. All factor loadings are significant at  $p < .05$ . Preface to scale items: "For the following items, indicate how much you agree or disagree with what the item says regarding your current romantic relationship or romantic partner. Choose only one response to each statement. Please be as accurate and honest as you can be. Respond to each item as if it were the only item. That is, don't worry about being 'consistent' in your responses. There are no right or wrong answers." Response scale is 0 = *Very true for me*, 1 = *Somewhat true for me*, 2 = *Somewhat false for me*, 3 = *Very false for me*. RIS = relationship incentive sensitivity; RTS = relationship threat sensitivity.

need for affiliation, and need for achievement. We expected that RTS would relate to other measures reflecting sensitivity to threat, specifically avoidance motivation in friendships and rejection sensitivity. We also expected RTS to relate to a measure of anxiety in the context of relationships (i.e., attachment anxiety).

We expected that RIS would relate to a measure of need for affiliation, because people who seek incentives in romantic relationships are also likely to be motivated for general relationships. We expected that avoidant attachment would relate *inversely* to RIS, because avoidant attachment taps lack of comfort with closeness in relationships. Thus, avoidant attachment is conceptually opposed to relationship approach motivation. Finally, we expected RIS to relate to a measure of approach motivation in friendships.

Throughout, we also expected that RTS would not relate to measures that theoretically should relate to RIS and that RIS would not relate to measures that theoretically should relate to RTS. This expected dissociation follows from the assumption that the motivational tendencies are relatively independent, rather than opposites of a single continuum.

Another sample was used to examine associations of the RTS and RIS scales with a measure of social desirability. We expected that neither RTS nor RIS would correlate with a bias toward impression management or tendencies toward self-deception.

## Method

Both partners from 50 romantic couples in which one partner was a psychology student participated for course research credit in a study of "experiences in relationships." Average age for female and male partners was 19.50 ( $SD = 1.31$ ) years and 20.12 ( $SD = 1.60$ ) years, respectively. The majority of female and male partners were Caucasian (76% and 88%, respectively). Length of relationship averaged 14.36 months ( $SD = 15.20$ ).

**Measures.** As in Study 1, participants completed the RITSS. Mean relationship-specific threat sensitivity (RTS;  $M = 14.24$ ,  $SD = 2.88$ ,  $\alpha = .70$ ) and incentive sensitivity (RIS;  $M = 19.72$ ,  $SD = 3.13$ ,  $\alpha = .80$ ) for male partners were comparable to those of Study 1. Mean relationship-specific threat sensitivity ( $M = 15.97$ ,  $SD = 2.37$ ,  $\alpha = .70$ ) and incentive sensitivity ( $M = 20.71$ ,  $SD = 2.34$ ,  $\alpha = .72$ ) for female partners were also comparable to those of Study 1. In contrast to the strong correlations between RTS and RIS in Study 1, correlations here were modest ( $r = .28$ ,  $p < .05$  and  $r = .24$ , *ns*) for women and men.

Participants also completed the following measures, delivered in random order: The *Social Motivation Scale* (SMS) measures the holding of approach and avoidance goals in friendships (Elliot et al., 2006). Example items are: "I am trying to deepen my relation-

ships with my friends this semester” and “I am trying to avoid disagreements and conflicts with my friends this semester” Alphas for the female SMS-Approach and Avoidance scales were .87 and .74, respectively. Alphas for the male SMS-Approach and Avoidance scales were .85 and .78, respectively.

The *Experiences in Close Relationships-Revised* (ECR-R; Fraley, Waller, & Brennan, 2000) is a dimensional measure of adult attachment. It has an Attachment Anxiety dimension reflecting fear of abandonment (e.g., “I’m afraid that I will lose my partner’s love”) and an Attachment Avoidance dimension (e.g., “I prefer not to be too close to romantic partners”). Alphas for the female ECR-R Anxiety and Avoidance scales were .90 and .91, respectively. Alphas for the male ECR-R Anxiety and Avoidance scales were .61 and .90, respectively.

The *Rejection Sensitivity scale* (RS; Downey & Feldman, 1996) measures sensitivity to rejection across many types of relationships (e.g., “You approach a close friend to talk after doing or saying something that seriously upset him/her. How concerned or anxious would you be over whether or not your friend would want to talk with you?”). Alphas for female and male rejection sensitivity were .83 and .71, respectively.

The *Personality Research Form* (PRF; Jackson, 1974) scales for need for affiliation and need for achievement were also administered. The Affiliation subscale measures how much people desire to have relationships (e.g., friendships). The Achievement subscale measures how much people desire to attain achievement-oriented goals (work-related goal setting). Alphas for female Affiliation and Achievement scales were .79 and .61, respectively; alphas for male Affiliation and Achievement scales were .79 and .77, respectively.

A slightly modified version of the *Quality of Marriage Index* (QMI; Norton, 1983) for dating relationships asked partners to rate how much they agree with six relationship statements, such as “We have a good relationship.” The range is 6–45, with higher scores meaning greater relationship quality. Alphas were .88 for male partners and .90 for female partners.

A second sample of psychology students completed the RITSS along with a measure of social desirability. To enhance comparability with other samples, only the 104 who reported that they

currently were in romantic relationships were included. The measure of social desirability was the *Balanced Inventory of Desirable Responding*, Version 7 (Paulhus, 1998), which consists of two subscales. The Self-Deceptive Positivity subscale measures a tendency to respond to self-reports genuinely but with a positive bias. The Impression Management subscale measures a tendency toward positive self-presentation. Alphas were .72 and .70, respectively.

## Results and Discussion

Correlations between the RITSS and most other measures for the first sample are presented in Table 2. As expected, among the men, the SMS Approach and Avoidance subscales related positively to RIS and RTS, respectively. The correlations are moderately high, indicating that the instruments are related but distinct. Also as expected, the SMS Approach scale did not relate to RTS, and the SMS Avoidance scale did not relate to RIS.

A slightly different picture emerged among the women. As expected, SMS Approach was positively related to RIS and not related to RTS. Unexpectedly, however, SMS Avoidance related positively to RIS; that is, women who endorsed high incentive sensitivity in close relationships also endorsed avoidance goals in friendships. A broader look at the overall pattern, however, shows that among women, SMS Avoidance also correlated strongly and positively with SMS Approach. Furthermore, among women, SMS Avoidance did not correlate with ECR Attachment Avoidance, as should have been the case. This pattern suggests that the unexpected association is likely attributable to a problem in SMS Avoidance as assessed in this sample.

As expected, among both men and women, Attachment Anxiety related positively to RTS and did not relate to RIS. Also as expected, Attachment Avoidance related negatively to RIS (suggesting that people who avoid closeness are less sensitive to incentives in close relationships) and did not relate to RTS.

The RS scale did not correlate with RTS or RIS among either men or women. Because the RS includes a wide variety of relationships (e.g., rejection from teachers, parents, partners), we iso-

Table 2

*Correlations of RTS and RIS Scales With Measures of Rejection Sensitivity, Adult Attachment, Social Motivation in Friendships, Need for Affiliation, Need for Achievement, and Relationship Quality (Study 2)*

Measure	1	2	3	4	5	6	7	8	9	10	11
1. RTS	—	.24	.26	.31*	.30*	-.12	.21	.31*	.04	-.10	.12
2. RIS	.28*	—	.21**	.18	-.23	-.42**	-.09	.02	.32*	.23	.40**
3. SMS Approach	.19	.46**	—	.39**	.13	-.34*	.08	.22	.26	.31*	.04
4. SMS Avoidance	.26	.33*	.56**	—	.17	-.24	.02	.07	.19	.33*	.08
5. ECR-R Anxiety	.48**	.04	.15	.15	—	.23	.16	.23	.02	-.08	-.25
6. ECR-R Avoidance	.04	-.28*	.14	-.04	.25	—	.18	.09	-.10	-.03	-.53**
7. RS Total	.18	-.01	.08	.14	.48**	.39**	—	.73**	-.21	-.14	-.02
8. RS Romantic	.30*	.08	.30*	.26*	.71**	.39**	.73**	—	-.03	-.12	-.12
9. PRF Affiliation	.01	.34*	.37**	.25	-.11	-.18	-.36*	-.02	—	.10	.03
10. PRF Achievement	.05	.17	.24	.04	-.16	.11	-.02	-.01	.09	—	.12
11. Relationship Quality	-.22	.16	-.07	.04	-.50**	-.55**	-.39**	-.50**	.02	.19	—

*Note.* Male partner correlations are above the diagonal; female partner correlations are below the diagonal. RTS = Relationship Threat Sensitivity; RIS = Relationship Incentive Sensitivity; SMS = Social Motivation Scale; ECR-R = Experiences in Close Relationships-Revised; RS = Rejection Sensitivity Scale; PRF = Personality Research Form.

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

lated the items on rejection in close romantic relationships and created romantic RS scales. In this subgroup of items, correlations with RTS were significant for both men and women, and RIS was still unrelated. These results add both convergent and discriminant validity for the RTS subscale; RTS captures some component of rejection sensitivity in romantic relationships—and anxiety in men's friendships, as noted earlier—but appears not to extend to other types of relationships, such as those with parents or teachers. These findings support our argument that there is something unique about motivations in romantic relationships.

As expected, the PRF Affiliation subscale was positively related to RIS for both men and women and unrelated to RTS, indicating that people who have a strong need for affiliation are highly motivated to achieve relationship rewards. The PRF Achievement subscale was not related to either RTS or RIS, lending credence to the position that achievement motivation is distinct from relationship motivation.

Thus, relationship incentive sensitivity related positively to measures assessing approach motivation in friendships and need for affiliation, and related negatively to a measure examining lack of comfort with closeness in relationships. Threat sensitivity did not relate to any of these measures. Relationship threat sensitivity related positively to measures capturing avoidance goals in friendships, attachment anxiety, and rejection sensitivity that were specific to romantic relationships. With one exception, the measure of relationship incentive sensitivity did not relate to any of these measures. All convergent correlations were in the moderate range, suggesting that the RITSS capture constructs that are related to but distinct from the constructs the other measures assess.

With respect to prediction of relationship quality, in the subsample of men, when we entered both predictors simultaneously, RIS predicted relationship quality ( $\beta = .42, p < .01$ ), and RTS did not ( $\beta = -.05, ns$ ). These results are consistent with those of Study 1. In the subsample of women, RIS did not predict relationship quality ( $\beta = .18, ns$ ), but RTS was negatively associated with relationship quality ( $\beta = -.42, p < .01$ ). These findings differ from those of Study 1.

Finally, neither RIS nor RTS correlated significantly with either Self-Deceptive Positivity ( $rs = -.11$  and  $.16, ns$ ) or Impression Management ( $rs = .07$  and  $-.17, ns$ ) in the second sample.

### Study 3

In the first two studies, we examined university students in dating relationships. In Study 3, we examined a sample of engaged couples from the community. We attempted to cross-validate the proposed factor structure and again examined associations with relationship quality.

#### Method

**Participants and procedure.** A sample of 164 engaged couples participating in a church-sponsored, mandatory 1-day marriage preparation program completed the revised RITSS and a measure of marital quality. Both husbands-to-be and wives-to-be from each couple were recruited as part of a larger procedure for evaluating the preparation program; they were offered small gift certificates for their participation. The mean age of participants was 29.15 years for men ( $SD = 5.67$ ) and 26.94 years for women

( $SD = 4.75$ ). Couples had been engaged an average of 11.05 months ( $SD = 9.19$ ) and were dating for 11.82 months ( $SD = 8.97$ ) prior to that. Of the couples, 57.5% were Hispanic, 3.6% were African American, 2.2% were Asian American and Pacific Islanders, 34.5% were European Americans, and 2.2% were listed in other categories (e.g., Caribbean decent). Seven percent of men and 3.9% of women had been married previously. The majority of participants had completed college (44.0% of women; 39.7% of men) or some college (22.5% of women; 33.1% of men).

**Measures.** Participants reported levels on the RTS scale (male partner  $M = 14.98, SD = 3.15$ , range = 5–20; female partner  $M = 16.39, SD = 2.54$ , range = 9–20) and RIS scale (male partner  $M = 21.29, SD = 2.28$ , range = 14–24; female partner  $M = 21.95, SD = 2.05$ , range = 11–24) that were comparable to those of Study 2.

In addition to the RITSS, couples completed the Positive and Negative Marital Qualities Scale (PNMQS; Fincham & Linfield, 1997). The PNMQS uses three items to assess negative evaluations about one's marriage separately from three items used to assess positive evaluations about one's marriage. Each subscale consists of three items using 0–10 response scales, where higher scores represent greater negative and positive marital quality. The separate PNMQS subscales have been found to correlate with observed dyadic behavior reflecting relationship quality (Mattson, Paldino, & Johnson, 2007). In the present sample, alphas for negative quality were .86 for both male and female partners, and alphas for positive quality were .85 and .84 for male and female partners, respectively. As might be expected in engaged couples, participants reported relatively low levels of negative marital quality and relatively high levels of positive marital quality (female negative quality = 7.27  $SD = 6.47$ ; female positive quality = 28.34,  $SD = 2.54$ ; male negative quality = 6.73,  $SD = 5.89$ ; male positive quality = 27.87,  $SD = 3.96$ ).

### Results

**Factor structure cross-validation.** We began by reevaluating the factor structure of the RITSS. First, we conducted CFAs with single-factor models to evaluate the stability of the individual RTS and RIS factors in male and female partners. For the male partners, RIS and RTS each appeared to represent stable factors, as indicated by good model fit: RIS,  $\chi^2(9, N = 164) = 10.66, p = .30$ ; RMSEA = .03; RTS,  $\chi^2(5, N = 164) = 7.49, p = .19$ ; RMSEA = .05, and adequate internal consistency (RIS:  $\alpha = .74$ ; RTS:  $\alpha = .75$ ). Similarly, for the female partners, the single-factor models provided good fit to the data: RIS,  $\chi^2(9, N = 164) = 11.90, p = .22$ ; RMSEA = .04; RTS:  $\chi^2(5, N = 164) = 4.29, p = .51$ ; RMSEA = .00, and the factors demonstrated adequate internal consistency (RIS:  $\alpha = .73$ ; RTS:  $\alpha = .74$ ). Thus, as in Study 1, when tested separately, RTS and RIS were stable constructs in male and female partners (see Table 1 for factor loadings).

Next, to confirm that RTS and RIS represent relatively distinct constructs, we combined the RTS and RIS factors in a two-factor model, which was compared with a one-factor model. Again, we evaluated models separately for male partners and female partners to assess fit within each gender. Improved fit with the two-factor model as compared with the one-factor model would provide support for the two-factor model.

For male partners, the two-factor model fit the data well,  $\chi^2(43, N = 164) = 50.44, p = .20$ ; RMSEA = .03. Combining RTS and RIS into a single factor resulted in significant deterioration in model fit,  $\Delta\chi^2(1) = 134.89, p < .0001$ , providing support for the construct validity of the scale in men. In the two-factor model, there was a small but significant covariance between the two factors ( $r = .25, p < .05$ ). For the female partners, the combined model provided excellent fit to the data,  $\chi^2(43, N = 164) = 48.29, p = .29$ ; RMSEA = .03. Specifying a single-factor model resulted in significant deterioration in model fit,  $\Delta\chi^2(1) = 82.43, p < .0001$ , supporting construct validity in women. RTS and RIS factors did not covary in the two-factor model among the women ( $r = .11, ns$ ). Overall, the two-factor model was supported in both engaged men and women.

**Predicting relationship quality.** Consistent with Studies 1 and 2, among men RIS related positively to the positive quality subscale of the PNQMS ( $\beta = .21, p < .01$ ); RTS did not relate to the negative quality subscale of the PNQMS ( $\beta = -.10, ns$ ). Neither RIS nor RTS related to the alternate scale of the PNQMS. Among women, RIS related positively to the positive quality subscale of the PNQMS ( $\beta = .20, p < .01$ ), and RTS related positively to the negative quality subscale of the PNQMS ( $\beta = .21, p < .01$ ). Neither RIS nor RTS related to the alternate scale of the PNQMS.

Three samples thus have concurred in showing that men's levels of relationship incentive sensitivity relate to their perceptions of relationship quality, using three different measures of relationship quality. The pattern has been less clear among women, but the pattern in this study was very close to our expectations. Among female partners, relationship incentive sensitivity related to positive aspects of relationship quality (conceptually consistent with results of Study 1); relationship threat sensitivity related to poorer relationship quality (conceptually consistent with results of Study 2).

#### Study 4

Thus far, evidence of predictive validity of the RITSS has been limited to overall relationship satisfaction. This is a limited test of the scales' ability to predict relationship-related experiences. The psychological processes underlying RTS and RIS sensitivities should be most engaged in the context of actual relationship-related events and processes. That is, the RTS scale should predict threat-related emotional reactions to a real relationship-related aversive experience, and the RIS scale should predict incentive-related emotional reactions to a real relationship-related appetitive experience. Study 4 tested this reasoning.

Recall that this work was prompted in part by the belief that a measure of relationship-specific incentive and threat sensitivities would predict close relationship outcomes better than would measures of more general reward and punishment sensitivities. Thus, we would expect RITSS to predict relationship experiences better than the global BIS/BAS scales. This possibility was not examined in any of the studies described thus far, but it was examined in Study 4.

We again cross-validated the factor structure of the RITSS in Study 4 and again examined its links with marital satisfaction. Beyond that, we tested whether the scales would predict affective responses in the context of relationship threats and rewards. We did so by examining affect elicited by two laboratory tasks. We

expected that RIS, but not RTS, would predict positive affect following a positive (incentive-oriented) conversation task; we predicted that RTS, but not RIS, would predict anxious affect following two negative (threat-oriented) conversation tasks. In both cases, we controlled for baseline affect and for global BIS and BAS sensitivities.

#### Method

**Participants and procedure.** This sample was part of a larger longitudinal investigation of newlyweds. Participants were 110 couples who had been married for 6 months or less. Participants were obtained through letters sent to couples via the Miami-Dade County marital registry. For this portion of the study, each couple was paid \$50 for their participation. The mean age was 27.99 years for male partners ( $SD = 5.09$ ) and 26.39 years for female partners ( $SD = 4.66$  years). Couples had been married an average of 4.37 months ( $SD = 1.56$ ) and were dating and engaged an average period of 29.88 months ( $SD = 15.11$ ) prior to that. Nine percent were African American, 2.1% were Asian American and Pacific Islanders, 28.3% were European Americans, 55.2% were Hispanic, and 5.4% were listed in other categories (e.g., Caribbean descent). Couples were excluded from the larger project if they (a) had children from current or prior relationships, (b) did not speak English at home, (c) had plans to move away from the Miami-Dade area within the next 2 years, or (d) one or both partners had been previously married.

Before arriving for the first laboratory visit, both partners of each couple were sent a packet of self-report materials to complete independently, seal, and bring with them. This packet included the Carver and White (1994) BIS/BAS scales, plus other measures not relevant to this study. At the beginning of the lab visit, couples were led into separate rooms to complete independently an additional set of relationship-focused measures, including the RITSS and a measure of relationship satisfaction. Afterwards, the couple was reunited and each partner filled out a baseline measure of positive affect and anxiety prior to the interaction tasks.

Immediately after the baseline affect measure, couples engaged in a series of videotaped observational tasks, each lasting for 15 min. Due to institutional review board concerns at the research site, the order of the tasks was the same for each couple. First was a daily events warm-up task asking them to talk about events that had occurred in the previous 24 hr. The next two tasks were conflict tasks, in which couples were asked to try to resolve a disagreement as they would at home. One topic of disagreement was chosen by the husband, the other by the wife. Topics were chosen using a questionnaire of common marital disagreements. Each spouse rated the three topics they fought about the most, on a scale from 0 (*we never fight*) to 100 (*we fight all the time*). The highest ranked item was chosen for each spouse's conflict task. Average rating for top area of disagreement was 69.15 ( $SD = 25.48$ , range = 10–100) for husbands and 74.12 ( $SD = 22.80$ , range = 12–100) for wives, (paired  $t(109) = -1.74, p < .09$ ).

Although tasks were designated as discussion focused on "husband" or "wife" issues, couples were instructed to discuss the topic as if they were at home, with no stipulation that one spouse lead the conversation (Gottman, 1994). Each conflict conversation lasted 12 min, and the order (husband conflict task vs. wife conflict task) was decided by coin flip. Immediately after each conflict

task, couples independently completed measures of current anxiety.

Finally, spouses were separated for 10 min to write about their positive feelings for each other in preparation for the positive task. While writing, couples were instructed to think about positive feelings they had for each other, which could include their partner's characteristics or shared positive events. Spouses were also given a list of positive feelings (e.g., love, passion, warmth) as a guide while writing. After the 10-min period, the spouses were reunited, their writings were removed, and the couple was instructed to spend the next 15 min talking together about their positive feelings for each other with no stipulation that one spouse lead the conversation (for further details on this paradigm, see Roberts & Greenberg, 2002). After this task, spouses independently completed measures of current positive affect.

**Measures.** The measures are discussed below.

**Laboratory affects.** Affect items were culled from various sources, such as the Positive and Negative Affect Schedule (PANAS; Watson, Wiese, Vaidya, & Tellegen, 1999), to measure affect for the laboratory interaction tasks. Positive activation items (i.e., desire, passion, excitement, and enthusiasm) were chosen for the measure of positive affect (Laurenceau, Troy, & Carver, 2005). For negative affect, items related to the experience of anxiety (i.e., anxiety, tension, distress) were chosen because threat sensitivity is associated specifically with this affect (Carver, 2004; Carver & White, 1994).

Baseline affect was measured through items of the form "How much excitement do you feel RIGHT NOW?" on a 7-point scale anchored at 0 (*none at all*) and 6 (*an extreme amount*). Participant ratings of positive affect at baseline were averaged to create a measure of baseline positive affect (husbands:  $M = 3.34$ ,  $SD = 0.99$ ,  $\alpha = .77$ ; wives:  $M = 3.27$ ,  $SD = 0.98$ ,  $\alpha = .75$ ), and ratings of anxiety at baseline were averaged to create a measure of baseline anxiety (husbands:  $M = 1.67$ ,  $SD = 0.68$ ,  $\alpha = .61$ ; wives:  $M = 1.73$ ,  $SD = 0.64$ ,  $\alpha = .60$ ).

After each conversation, participants rated their feelings during the conversation, through questions of the form "How much excitement did you feel DURING THE INTERACTION?" using the same scale. Participant ratings of positive affect following the positive conversation task were averaged to create a measure of total positive affect (husbands:  $M = 4.28$ ,  $SD = 0.76$ ,  $\alpha = .82$ ; wives:  $M = 4.07$ ,  $SD = 0.84$ ,  $\alpha = .80$ ). Inspection of the data revealed that the anxiety ratings following the conflict conversation pertaining to the partner's issue were higher on average than those following the conflict conversation pertaining to one's own issue. Thus, we analyzed the anxiety reported following the conversation pertaining to the partner's issue (husbands:  $M = 2.24$ ,  $SD = 0.99$ ,  $\alpha = .70$ ; wives:  $M = 2.54$ ,  $SD = 1.17$ ,  $\alpha = .85$ ).

**The QMI.** The QMI (Norton, 1983) asks partners to rate how much they agree with six relationship statements, such as "We have a good marriage." The range of possible responses is 6–45, with higher scores meaning greater relationship quality. Using a paired comparison, husbands and wives did not differ on the QMI,  $t(108) = 0.10$ , *ns*. Alphas were .88 for husbands and .87 for wives.

**BIS/BAS scales.** Individual differences in global incentive and threat sensitivities were assessed using Carver and White's (1994) 24-item BIS/BAS scales (seven BIS items, 13 BAS items, four distractor items). As noted earlier, incentive sensitivity is measured by three subscales: Reward responsiveness (five items,

$\alpha = .75$  for both men and women in this sample), Fun-seeking (four items,  $\alpha_s = .70$  and  $.72$  for men and women in the sample, respectively), and Drive (four items,  $\alpha_s = .71$  and  $.74$  for men and women in the sample, respectively). Threat sensitivity is measured by seven BIS items ( $\alpha_s = .80$  for both men and women in this sample).

## Results

**Factor structure cross-validation.** We conducted a CFA to reexamine the factor structure. We first tested single-factor models separately for husbands and wives. The RIS factor model demonstrated excellent fit in both the husbands',  $\chi^2(9, N = 110) = 4.47$ ,  $p = .88$ ; RMSEA = .00, and the wives' data,  $\chi^2(9, N = 110) = 9.14$ ,  $p = .42$ ; RMSEA = .01. RIS displayed adequate internal consistency in both men ( $\alpha = .79$ ) and women ( $\alpha = .84$ ). Similarly, the RTS factor model fit the data well in both husbands,  $\chi^2(5, N = 110) = 6.01$ ,  $p = .30$ ; RMSEA = .04, and wives,  $\chi^2(5, N = 110) = 5.70$ ,  $p = .34$ ; RMSEA = .04. Internal consistency was slightly lower, although adequate (husbands  $\alpha = .66$ ; wives  $\alpha = .71$ ). Thus, the independent RIS and RTS factors appear stable and reliable in this sample (see Table 1 for factor loadings). Participants reported levels on the RTS (husbands  $M = 14.98$ ,  $SD = 2.93$ , range = 5–20; wives  $M = 16.17$ ,  $SD = 2.77$ , range = 7–20) and RIS (husbands  $M = 21.44$ ,  $SD = 2.39$ , range = 14–24; wives  $M = 21.48$ ,  $SD = 2.96$ , range = 6–24) that were very similar to those of the engaged couples in Study 3.

As in Studies 1 and 3, a two-factor model was specified and compared with a one-factor model. For the wives, the two-factor model provided adequate fit to the data,  $\chi^2(43, N = 110) = 57.05$ ,  $p = .07$ ; RMSEA = .055. Loading all items onto a single factor resulted in significant deterioration in model fit,  $\Delta\chi^2(1) = 50.84$ ,  $p < .0001$ . Despite a relatively large numeric correlation, RTS and RIS did not significantly covary in the two-factor model ( $r = .54$ , *ns*). For the husbands, the two-factor model fit the data well,  $\chi^2(43, N = 110) = 37.15$ ,  $p = .72$ ; RMSEA = .00. The one-factor model resulted in significant deterioration in model fit,  $\Delta\chi^2(1) = 63.89$ ,  $p < .0001$ . As among the wives, there was no significant covariation between RTS and RIS at a latent variable level ( $r = .07$ , *ns*). We also constructed composite scales for RTS and RIS across male and female partners and examined their links with the global BIS and BAS scales. It appears RTS and RIS are relatively distinct constructs from each other and from measures of global approach and avoidance motivation in this sample (see Table 3 for correlations).

**Predicting marital quality.** We examined associations between RTS and RIS and marital quality using path modeling in Mplus (Muthén & Muthén, 2004). Husbands' RIS scores were positively associated with marital quality ( $\beta = .26$ ,  $p < .01$ ), and RTS scores were not associated with marital quality ( $\beta = .03$ , *ns*). Wives' RIS scores were positively associated with marital quality ( $\beta = .25$ ,  $p = .01$ ), and RTS scores were not associated with marital quality ( $\beta = .01$ , *ns*). The pattern in men is fully consistent with findings from Studies 1–3. The pattern in women is consistent with that of Study 1 and partially consistent with that of Study 3. Although cross-partner effects were specified, none was significant. This pattern of relationships also remained after controlling for global BIS and the three global BAS scales, which were not

Table 3  
Pearson Correlation Matrix of Composite RTS, RIS, BIS, and BAS Scales for Husbands and Wives (Study 4)

Variable	1	2	3	4	5	6
1. RTS	—	.02	.53**	.08	-.04	.29**
2. RIS	.42**	—	-.13	.39**	.25**	.30**
3. BIS	-.10	.06	—	-.06	-.07	-.30**
4. BAS-Drive	.03	.22*	.03	—	.41**	.45**
5. BAS-FS	-.06	.14	.01	.53*	—	.34**
6. BAS-RR	.18	.31**	.19*	.47**	.34**	—

Note. Above the diagonal are husband correlations; below the diagonal are wife correlations. *N* for each correlation ranges from 103 to 110 participants due to missing data. RTS = Relationship Threat Sensitivity; RIS = Relationship Incentive Sensitivity; BIS = Behavioral Inhibition System; BAS = Behavioral Activation System; FS = Fun Seeking; RR = Reward Responsiveness.

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

significantly associated with marital quality among husbands or wives.

**Predicting situational affect.** We then tested the predictive validity of the RIS/RTS scales with respect to situational affective reactions. We examined associations between RIS and positive affect and between RTS and anxiety, under laboratory conditions designed to activate relationship incentive and relationship threat motivations, respectively.

As a manipulation check, we verified by paired samples *t* tests that anxiety immediately after the conflict discussions increased from baseline among both husbands and wives,  $t(109) = 5.89, p < .01$ ; and,  $t(109) = 6.94, p < .01$ , respectively. It is noteworthy, however, that husbands' postconflict discussion anxiety ratings were significantly lower than those of wives,  $t(109) = -2.36, p < .05$ . RTS was not significantly associated with baseline anxiety among wives or husbands ( $\beta = .16, ns$ , and  $\beta = .17, ns$ , respectively), though the minimal associations were in an expected direction.

Positive affect immediately following the positive conversation task increased from baseline among both husbands and wives,  $t(109) = 11.83, p < .01$ ; and,  $t(109) = 10.26, p < .01$ , respectively. Husbands' positive affect after the discussion was significantly higher than that of wives,  $t(109) = 2.32, p < .05$ . It is of interest that RIS was significantly associated with baseline positive affect for both wives and husbands ( $\beta = .42, p < .01$  and  $\beta = .36, p < .05$ , respectively).

Models were specified for husbands and wives in which total positive affect (assessed after the positive task) and total anxiety

(assessed after the conflict tasks) were simultaneously regressed on RTS and RIS, while controlling for baseline levels of these affects (see Table 4). Among the wives, the model in which RTS and RIS simultaneously predicted total positive affect and total anxiety while controlling for baseline levels of these affects provided marginal fit to the data,  $\chi^2(79, N = 110) = 110.49, p = .01$ ; RMSEA = .06. As predicted, RIS related positively to positive affect after the positive conversation task (see Table 4) and was unrelated to anxiety after the conflict conversation task. Also as expected, RTS related positively to anxiety after the conflict conversation task and was unrelated to positive affect after the positive conversation task. This pattern of associations also remained after controlling for the BIS and three BAS scales. Thus, among wives, the results were exactly as expected: Relationship-specific incentive sensitivity uniquely predicted positive affect after a rewarding interaction, whereas relationship-specific threat sensitivity uniquely predicted anxiety after a threatening interaction.

Among the husbands, the model provided excellent fit to the data,  $\chi^2(79, N = 110) = 84.10, p = .33$ ; RMSEA = .03. As predicted, husband RIS was related to positive affect after the positive conversation (see Table 4), whereas RTS was not. However, husband RTS did not significantly relate to reported anxiety after the conflict conversation after controlling for baseline anxiety, but RIS related negatively to anxiety. Again, these relationships remained consistent after controlling for the BIS and three BAS scales.

One interpretation of the failure of RTS among husbands is that the conflict conversation may not have represented an actual

Table 4  
Associations Between RIS and RTS Scales and Positive Affect and Anxiety Following Positive and Aversive Laboratory Tasks in Newlywed Husbands and Wives (Study 4; *N* = 110 Couples)

Scale	Husbands		Wives	
	Positive affect after positive	Anxiety after aversive	Positive affect after positive	Anxiety after aversive
RIS	.49*/.32*	-.22*/-.29*	.39*/.21*	-.04/.01
RTS	.00/-.04	.20*/.16	-.04/-.16	.41*/.35*

Note. Standardized regression coefficients before the slash are without controls; coefficients after the slash control for baseline affect. Coefficients are based on full-information maximum likelihood estimation. RIS = Relationship Incentive Sensitivity; RTS = Relationship Threat Sensitivity.

†  $p < .07$ . \*  $p < .05$ .

relationship threat to the husbands in this sample. Although the task did raise their anxiety significantly, their anxiety after the task was significantly lower than wives' anxiety. Qualitative observation suggested that couples generally appeared comfortable with each other during these sessions, and the husbands may not have considered these brief conflict discussions to be a true threat in the context of their relationship. If the task failed to activate the sense of threat among husbands, then it would not be surprising that RTS scores did not relate to husbands' anxiety responses.

A final question concerns the BIS/BAS scales in the absence of the RITSS. At the zero-order level, overall BIS was significantly related to posttask anxiety for husbands ( $r = .23, p < .05$ ) but not for wives ( $r = .06, ns$ ). Fun-seeking ( $r = .19, p < .05$ ) and Reward responsiveness ( $r = .26, p < .01$ ) were significantly related to posttask positive affect among husbands; no BAS scale related significantly to posttask positive affect among wives.

## Conclusions

The findings from Study 4 yield good support for the predictive validity of the measure of relationship incentive sensitivity among both husbands and wives, and incremental validity vis-à-vis the BIS/BAS scales. Evidence for the measure of relationship threat sensitivity was mixed. It predicted anxiety among wives after a laboratory experience intended to foster relationship threat (and did so controlling for BIS), but it did not do so among husbands, perhaps because the lab task was experienced as less threatening by husbands.

## General Discussion

The work described here was intended to develop a self-report instrument that would capture individual differences in the sensitivity of relationship-specific incentive-approach and threat-avoidance systems. An item set was created and shown to have a coherent two-factor structure. The factor structure from the first study provided good fit in subsequent samples. Both factors had good internal consistency, suggesting that scales are stable and reliable.

We also provided initial support for the convergent and discriminant validity of the scales. Study 2 showed that the RIS scale was positively associated with existing measures of affiliation and approach of friendships, and was inversely associated with attachment avoidance. Importantly, with one exception, RIS did not relate to any measure of anxiety. The RTS scale was associated with measures of anxiety in relationships and did not relate to any measure of approach or affiliation. Neither RTS nor RIS related to achievement motivation, a theoretically unrelated motivational construct. Thus, each scale related to conceptually similar constructs, but each remained separate from conceptually unrelated constructs. Further evidence suggests that the scales are not overly contaminated by social desirability tendencies.

Some comment is warranted on the relationship between RTS and RIS. As noted earlier, global BIS and BAS are considered relatively separate systems. However, BIS and BAS scales are not entirely independent empirically. We similarly view relationship-specific incentive and threat sensitivities as distinct, and we expected the RTS and RIS scales to be relatively separate empirically. Instead, correlations ranged from .07 all the way to .54 ( $M =$

0.29), with about half being significant. Nor is this the only context in which unpredicted overlap has been seen between approach and avoidance (e.g., Elliot et al.'s, 2006, measure of approach and avoidance goals).

It is unclear whether positive correlations between these scales reflect method variance (e.g., acquiescence tendencies) or whether there is substantive meaning behind them. We see no obvious basis for the large variation in correlations across samples. Despite the correlations, the CFAs consistently indicated that a two-factor model fit better than a one-factor model. Further examination of these questions should be part of the agenda for future work using these scales.

## Predicting Perceptions of Relationship Quality

All studies examined the predictive validity of the scales—whether the RITSS would predict relationship satisfaction or relationship quality—using diverse measures. Among men, the pattern was clear: Relationship incentive sensitivity predicted perceptions of relationship quality in all cases: among college-age dating men, engaged men, and newlywed husbands. Men's relationship threat sensitivity did not predict perceptions of relationship quality in any sample.

Among women, a similar pattern emerged for relationship incentive sensitivity, though with slightly less consistency than among men. In Studies 1, 3, and 4, relationship incentive sensitivity was related to (or tended to relate to) relationship quality. It is not clear why this association did not reach significance in Study 2, but it is worth noting that this was by far the smallest sample of women and that the association was in the same direction and roughly of the same order of magnitude as in the other samples. Thus, low power was certainly a contributor.

The results among women were mixed with regard to relationship threat sensitivity: Studies 1 and 4 found no association with relationship quality, whereas Studies 2 and 3 found negative associations. Thus, perceptions of relationship quality were more prone to influence from threat sensitivity among women than among men, though even among women the effect was less reliable than that for relationship incentive sensitivity.

With respect to perceptions of relationship quality as a dependent variable, then, there is strong evidence for the predictive validity of relationship incentive sensitivity, but far less for relationship threat sensitivity. The latter outcome is consistent with previous evidence of somewhat weak links between relationship satisfaction and broader negative motivational measures such as BIS, neuroticism, and negative emotionality (e.g., Karney & Bradbury, 1995; Simpson et al., 2006). We had blamed the earlier inconsistency on the issue of specificity of measurement, but this change in level of specificity did not remedy that inconsistency.

How else might we interpret the null findings? In theory, higher incentive sensitivity should predict greater satisfaction only to the extent that the relationship currently is yielding positive experiences. Higher threat sensitivity should predict less satisfaction only to the extent that the relationship is yielding threatening or punishing experiences. The most plausible view is that these relatively new relationships (i.e., dating, engaged, newlywed) were not producing high levels of threat or punishment at this point. Other aspects of the relationship quality data are consistent with this view: Participants generally reported high levels of relationship

quality, contrasting with other research showing more variation in quality (e.g., Karney & Bradbury, 1995). In short, the pattern may say more about influences on relationship quality early in relationships than about the measure of individual differences.

An important task for the future will be to use the RITSS as part of couples assessment in samples of distressed couples. We would expect that distressed couples to show somewhat more consistent and robust associations between relationship threat sensitivity and marital outcomes such as satisfaction and divorce proneness. Approximately half the couples who end in divorce come from high-distress relationships (typically characterized by high conflict), and relationship threat sensitivity should play a predictive role in those cases. Interestingly, the remaining divorces come from low-distress relationships (Amato & Hohmann-Marriott, 2007), and one of the most important areas of presenting problems in couple treatment is lack of loving feelings (Whisman, Dixon, & Johnson, 1997). This overall pattern suggests that our new measure could help predict which couples are particularly reactive to relationship threats (such as conflict) and which ones are instead emotionally disengaged because of low sensitivity to relationship incentives (such as loving feelings and interest). These are intriguing clinical directions that warrant further investigation.

### Predicting Affect

Predictive validity was also tested with respect to the experience of emotions. Study 4 examined how the RITSS predicted affective responses to close relationship situations that were created in the lab to be aversive ("conflict" task) and appetitive ("love" task). Among female partners, our hypotheses were fully confirmed. Higher relationship incentive sensitivity predicted greater positive affect after the rewarding interaction, and did so above and beyond the BAS scales. Higher relationship threat sensitivity predicted greater anxiety after the conflict interactions, and did so above and beyond the global BIS scale. Thus, individual differences in women's sensitivity to relationship incentives and threats seem to influence their emotional experiences with their partners, given appropriate stimulus conditions.

Among male partners, our hypotheses were partially confirmed. Higher relationship incentive sensitivity predicted greater positive affect after the rewarding interaction. Although relationship threat sensitivity was marginally related to anxiety at the bivariate level after the conflict interactions, that association faded once baseline anxiety was controlled. As discussed earlier, we suspect husbands did not consider the conflict tasks to be particularly threatening, and their relationship threat sensitivity therefore was not engaged. Perhaps, newlywed wives may be more attuned to relational threats earlier in the relationship than their husbands. Husbands may only develop this sense of threat in conflict later in their relationships. This speculation is consistent with the idea that wives may be a more sensitive "barometer" of the marital relationship (Floyd & Markman, 1983) and is something to examine in future work.

### Concluding Comments

The samples captured a diverse group of people in romantic relationships, varying on a number of demographic variables such as ethnicity, age, and socioeconomic status. The findings go be-

yond dating undergraduates, but we should note that we did not study any long-married couples. It is also worth stressing that the RTS and RIS scales not only predicted relationship outcomes, they did so above and beyond global BIS and BAS. This supports the idea that domain-specific factors are better predictors of specific relationships than are general factors (Reis et al., 2002).

This work reported here was undertaken from the perspective that the sensitivity of approach and avoidance systems represent fundamental building blocks of behavior in general, and the activities that occur in close relationships in particular. The outcomes examined in these studies concern affective experiences and relationship quality. However, these motivational qualities should also relate to overt behaviors. For example, high sensitivity to relationship rewards may predict engaging in more frequent positive behavior toward one's partner. Relationship reward sensitivity may yield a cycle of positive behavior from one partner following positive behavior from the other. There may also be merit in focusing on how these motivational sensitivities influence daily behaviors, affect, and intimacy processes in relationships. We hope that the availability of these measures will promote future research to understand further the consequences of these personality-in-relationship systems.

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