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Commitment-Insurance: Compensating for the Autonomy Costs of Interdependence in Close Relationships

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Abstract

A model of the commitment-insurance system is proposed to examine how low and high self-esteem people cope with the costs interdependence imposes on autonomous goal pursuits. In this system, autonomy costs automatically activate compensatory cognitive processes that attach greater value to the partner. Greater partner-valuing compels greater responsiveness to the partner's needs. Two experiments and a daily diary study of newlyweds supported the model. Autonomy costs automatically activate more positive implicit evaluations of the partner. On explicit measures of positive illusions, high self-esteem people continue to compensate for costs. However, cost-primed low self-esteem people correct and override their positive implicit sentiments when they have the opportunity to do so. Such corrections put the marriages of low self-esteem people at risk: Failing to compensate for costs predicted declines in satisfaction over a one year period.

> O cunning Love! with tears thou keep'st me blind,
>
> Lest eyes well-seeing thy foul faults should find!
>
> Sonnet, 148.

Why would love need to keep people blind, as Shakespeare mused? In committing to a romantic partner, people gain many things, including a confidante, a source of support, and a

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collaborator in play. They also give up something precious. In committing to Sally, Harry submits to a life where he can no longer do exactly what he wants to do when he wants to do it. The basic structure of interdependence guarantees repeated exposure to the autonomy costs that come from wedding one's outcomes to the partner's actions (Clark & Grote, 1998; Kelley et al., 2003). The costs to one's goal pursuits that interdependence imposes are as varied as they are vexingly abundant (Kelley, 1979). They can be as mundane as not being able to watch a favorite television show without interruption, enduring a partner's obsession with a sports team, and losing sleep in the din of a loved one's snores. They can also be as serious as sacrificing time with friends and adjusting one's career aspirations to accommodate to a partner's desire to start a family. In blinding Harry to such autonomy costs, his love may well be cunning.

This paper examines how people cope with the inevitable costs that interdependence imposes on one's autonomous goal pursuits. We propose the existence of a commitment-insurance system – one that deflects attention from such autonomy costs by attaching compensatory value to the partner that justifies these costs. This threat-management system functions to protect the continued state of mental clarity or purpose needed to motivate one's own responsiveness and sustain satisfying relationship bonds. This paper presents two experiments and a longitudinal daily diary study of newlyweds that examine how the commitment-insurance system operates in the relationships of low and high self-esteem people. We argue that autonomy costs automatically activate cognitive processes that attach compensatory value to the partner, which in turn, functions to increase responsiveness to the partner's needs. However, low self-esteem people typically correct for this compensatory response to protect against the risk of becoming too psychologically attached to the partner. By deflecting attention from the costs that could induce doubt, cost-inspired partner-valuing functions to protect and sustain satisfaction in new marriages. Ironically, in correcting the propensity to compensate for costs, low self-esteem people actually put themselves at greater risk for dissatisfaction and disappointment.

The Commitment-Insurance System

Interdependence is fundamental to romantic life. One partner's actions constrain the other partner's capacity to meet important needs and goals (Kelley, 1979). Compounding this structural reality, the goals and interests of each partner typically diverge in important respects (Lykken & Tellegen, 1993). Interdependence thus imposes inevitable restrictions on one's autonomous goal pursuits. People must compromise their personal interests to accommodate to their partner (Van Lange, Rusbult, Drigotas, Arriaga, Witcher, & Cox, 1997). Such autonomy costs of closeness may be partner-imposed, such as enduring a partner's unfortunate musical tastes, self-imposed, such as sacrificing time with one's friends to spend time with the partner, or relationship-imposed, such as having to politely tolerate an in-law's criticisms.[1]

The perception of costs generally threatens the purposeful and promotive orientation people need to possess to sustain strong relationship bonds (Gagne & Lydon, 2004; Holmes & Rempel, 1989; Murray, 1999). To maintain a satisfying, committed relationship, people must respond relatively selflessly to their partner's needs (Reis, Clark & Holmes, 2004).

They must also sustain the belief that their partner is the right person for them (Holmes & Rempel, 1989; Murray, 1999). Being preoccupied by costs both undermines the motivation to monitor a partner's needs (Kelley, 1979; Van Lange et al., 1997) and provokes uncertainty about whether the partner is worth the personal sacrifice being responsive entails (Holmes, 1981; Holmes & Rempel, 1989; Murray, 1999). Therefore, the task of building a satisfying and stable relationship bond might benefit greatly from some kind of psychological mechanism being in place to deflect attention from the costs that could otherwise derail or threaten one's motivation to be responsive.

The commitment-insurance system functions to ensure that people maintain the state of mental clarity or resoluteness they need to behave with such happy, steadfast, and promotive purpose in their relationships. Consistency theorists have long argued that committed action requires a clear or non-conflicted state of mind (Abelson, 1983; Brickman, 1987; Festinger, 1957; Harmon-Jones, 1999; Holmes & Rempel, 1989; Kelley, 1983; McGregor, 2003; McGregor, Zanna, Holmes & Spencer, 2001; Rudman, Dohn, & Fairchild, 2007; Taylor & Gollwitzer, 1995). Sustaining purpose in one's actions is such a fundamental need that four-year-old children and non-human primates (i.e., capuchin monkeys) justify difficult choices (Egan, Santos & Bloom, 2007). The desire to reduce dissonance and restore meaning in one's actions even biases visual perception, turning steep hills into gradual ascents and long distances into short ones (Balcetis & Dunning, 2007).

The need to maintain a clear and non-conflicted state of mind is similarly evident in adult close relationships (Gagne & Lydon, 2001). In fact, people in satisfying dating and marital relationships actually over-state the case for commitment. They see strengths in their partner that they do not see in others (Rusbult, Van Lange, Wildschut, Yovetich & Verette, 2000) and that are also not apparent to their friends (Murray, Holmes, Dolderman & Griffin, 2000) or their partner (Boyes & Fletcher, 2007; Gagne & Lydon, 2003; Murray, Holmes, & Griffin, 1996a; Neff & Karney, 2002). They exaggerate how much control they can exert over events in their relationships and make unduly optimistic projections for the future (Martz, Verette, Arriaga, Slovik, Cox, & Rusbult, 1998; Murray & Holmes, 1997). They also project their ideals onto their partner (Fletcher, Simpson, Thomas & Giles, 1999) and assume greater similarity than actually exists when judging their partner's behavior and thoughts (Thomas, Fletcher & Lange, 1997). The strong sense of certainty that such perceptions create stabilizes relationship bonds (Murray, Holmes & Griffin, 1996b). Idealizing a spouse even protects couples against suffering declines in love in the first 13 years of marriage (Miller, Niehuis & Huston, 2006).

[1]We use the term autonomy costs to capture the ways in which being part of a relationship restricts one's freedom to pursue one's goals autonomously. Autonomy costs involve the communal costs (Clark & Grote, 1998) one incurs in treating a partner well (e.g., the sacrifice of personal time that comes from sharing the partner's favored pastimes), the unintentional costs the partner's parallel existence creates (e.g., snoring, making a mess, being loud), and the largely unintentional costs the partner imposes by satisfying their own goals (e.g., not doing what they promised to do). As such, autonomy costs represent the inherent, but not necessarily prohibitive, costs that come with interdependent life. Autonomy costs do not include the more intentional hurtful acts, such as yelling, criticism, and physical abuse that one partner might perpetrate on another. Such acts are the province of risk-regulation dynamics because such intentionally hurtful acts activate concerns about rejection that can be incompatible with ensuring one's commitment (Murray, Derrick, Leder & Holmes, 2008; Murray, Holmes & Collins, 2006).

How Compensating for Costs Compels Responsiveness

Figure 1 illustrates how the commitment-insurance systems functions to maintain the resolute and purposeful state of mind needed to motivate responsiveness and sustain stable relationships. The procedural or "if-then" rules regulating the operation of this system function to make Harry want to maintain his commitment to Sally even when she compromises his personal goal pursuits because he perceives Sally as all-the-more valuable in such circumstances.

In this system, autonomy costs activate a "valuing" rule (Path A in Figure 1). This procedural or "if-then" rule links autonomy costs to compensatory cognitive processes that attach greater value to the partner (Brickman, 1987; Fletcher, Simpson & Thomas, 1999; Higgins, 2006; Holmes & Rempel, 1989; Murray & Holmes, 1993; 1999; Murray et al., 1996b; Neff & Karney, 2002). The attribution of greater value to the partner in turn activates a procedural "caring" rule (Path B in Figure 1). This "if-then" rule links the partner's greater perceived value to heightened personal motivation to meet the partner's needs even when it is personally costly, because the partner is worth it. Current assessments of the partner's intrinsic value thus function as a barometer of satisfaction and commitment, one that governs behavioral orientations toward the partner. Upswings in the perception of the partner's value correspond to state highs in satisfaction and commitment, motivating responsiveness. In contrast, drops in the perception of the partner's value correspond to state lows, de-motivating responsiveness. In positing that autonomy costs motivate partner-valuing, we are not arguing that costs are the only such impetus. Instead, the commitment-insurance system is a threat-management system, one that instigates the attachment of additional, compensatory value to the partner when necessary.

Existing theory and research provides indirect support for the existence of both the "valuing" and "caring" rules. First, experiences with adversity in goal pursuit seem to motivate the creation of value in relationships (Higgins, 2006; Lydon & Zanna, 1990; Simpson, Ickes & Blackstone, 1995). For instance, imagining that a close other has thwarted one's goals (by forgetting to mail a job application) automatically activates the construct of forgiveness (Karremans & Aarts, 2007). Experimentally priming the fragility of relationships increases the tendency to accentuate the positive in one's own relationship (Rusbult et al., 2000, Study 1). When risking a partner's rejection (by disclosing a personal problem), people in satisfying relationships also perceive more signs of understanding in their partner's care-giving efforts than unbiased observers perceive (Collins & Feeney, 2000; Collins & Feeney, 2004). Second, perceiving intrinsic value in the partner in turn seems to motivate caring and responsiveness. Feeling committed to a partner predicts increased willingness to forgive transgressions (Rusbult, Verette, Whitney, Slovik, & Lipkus, 1991) and heightened willingness to sacrifice one's own interests to meet the partner's needs (Van Lange et al., 1997). In the face of experimental feedback that a dating partner possesses personality weaknesses, feeling committed also protects people against declines in satisfaction (Arriaga, Slaughterbeck, Capezz & Hmurovic, 2007).

By functioning as a deflection-avoidance system, the commitment-insurance system stabilizes relationship bonds. It attaches sufficient intrinsic value to the partner to deflect attention from noticing or weighing the inevitable costs on one's autonomy that

interdependence imposes. By turning such adversity into statements of the partner's inherent value, this system effectively motivates future responsiveness to the partner's needs in costly situations (Tooby & Cosmides, 1996). The inherently reciprocal nature of relationships makes this proposed solution to the problem of interdependence costs a functional one. Meeting a partner's needs elicits that partner's willingness to meet one's own needs (Clark & Grote, 1998; Holmes, 2002; Kelley, 1979; Reis et al., 2004). Maintaining one's commitment to meeting the partner's needs therefore functions as a safety check to ensure the partner's reciprocal motivation to be responsive.

Efficiency and Flexibility

To provide an effective solution to the problem of autonomy costs, the commitment-insurance system needs to be both efficient and flexible (Murray, Aloni, Holmes, Derrick, Stinson & Leder, in press; Murray et al., 2008). To be efficient, it should operate without awareness, intention or control because ongoing and complex problems require automatic solutions (Bargh, 2007; Bargh & Ferguson, 2000; Dijksterhuis & Nordgren, 2006). To be flexible, it should accommodate to the general relationship circumstances imposed by people's chronic expectations about their partner (Murray et al., 2006).

The "efficiency" criterion stipulates that the "valuing" and "caring" rules are implicit to the procedural rules that comprise people's general working models (Baldwin, 1992; Holmes & Murray, 2007; Murray, Derrick et al., 2008; Tooby & Cosmides, 1996). If these rules are implicit to relationship representations, they should automatically regulate behavior in situations that limit conscious behavioral control (Dijksterhuis, Chartrand & Aarts, 2007). In situations that make autonomy costs salient, implicit evaluations of the partner should reveal compensatory valuing regardless of people's considered or declarative beliefs (Baldwin, 1992).

If these rules can also be flexibly applied, their influence may shift as a function of people's motivation and ability to correct (Murray, Derrick et al., 2008; Murray & Holmes, 2008). In situations that make autonomy costs salient, explicit evaluations of the partner should reveal compensatory valuing only when it is psychologically safe (Murray et al., 2006). Consistent with this logic, current models of attitudes, impression formation, and stereotyping assume that automatically-activated associations control behavior unless people have the motivation, opportunity, and capacity to over-ride them (Fiske & Neuberg, 1990; Olson & Fazio, in press). For instance, the respective strength of potentially competing goals governs whether activated stereotypes are applied to specific group members (Kunda & Spencer, 2003). Similarly, Macrae and Johnston (1998) argue that goals activated without conscious awareness can be over-ridden by explicit situational cues that suggest goal pursuit might be risky.

The correction process illustrated in Figure 1 illustrates the "flexibility" built into the commitment-insurance system. This system allows correction to protect people from the risk of becoming too attached to the partner and relationship. People generally regulate their psychological dependence on their partner, finding more to value in their partner's qualities when they believe their partner perceives more value in their own qualities (Murray, Holmes & Griffin, 2000). By not letting their commitment outstrip their partner's commitment,

people effectively protect themselves from the costs of rejection in advance. For people who generally question their partner's commitment, attaching greater value to the partner escalates the costs of rejection to an uncomfortable level (because losing a highly valued partner hurts more). When idealized thoughts of the partner's greater value reach conscious awareness, as they typically do (Boyes & Fletcher, 2007), such thoughts should activate the corrective goal of establishing the psychological distance needed to minimize the pain of rejection in advance. Such corrections might involve finding fault in the partner (Graham & Clark, 2006; Murray, Rose, Holmes, Bellavia & Kusche, 2002) or reminding oneself of past problems (Murray & Holmes, 1999).

How Self-Esteem Affects the Motivation to Correct

How might self-esteem affect the likelihood of the "valuing" rule being over-ridden or suppressed? People gauge their partner's love and commitment in part by assessing the worth of their own qualities (Murray et al., 2000; Murray, Holmes, Griffin, Bellavia & Rose, 2001). Because people with high self-esteem possess more positive and certain beliefs about themselves than people with low self-esteem (Campbell, 1990), they correctly assume that their partner sees many special traits worth valuing in them. In contrast, people with low self-esteem incorrectly assume that their partner sees few valuable qualities in them (Murray et al., 2000).

Trusting in their partner's love and commitment allows people high in self-esteem to feel reasonably safe attributing substantial value and importance to their partner and relationship (Murray et al., 2000; 2001). However, questioning their partner's love and commitment makes valuing the partner psychologically risky for people low in self-esteem. Therefore, the motivational impetus to correct the activation of the "valuing" rule is likely to be stronger for people low rather than high in self-esteem. When the situation affords the opportunity to correct, low self-esteem people may respond to autonomy costs with deliberative efforts to keep themselves from feeling overly attached to their partner or relationship.

Related empirical research on other regulatory systems in relationships strongly supports the hypothesis that individual differences in self-esteem might prompt the correction of automatic behavioral propensities (Cavallo, Fitzsimons & Holmes, 2007; Murray, Derrick et al., 2008; Murray, Aloni et al., in press). Research on the risk regulation system is illustrative of this perspective. This system solves the problem of behavioral indecision (i.e., approach vs. avoidance) inherent to situations of interdependence (Murray et al., 2006). The procedural or "if-then" rules cued by such situations automatically link external risk and vulnerability to the goal of approaching the partner. For instance, people are quicker to identify connectedness words in a lexical decision task when primed with a time when a significant other seriously disappointed them. This effect emerges regardless of self-esteem. In situations that lend themselves to conscious behavioral control, and thus, the opportunity to correct, only high self-esteem people act on such heightened needs for connection. When interpersonal risk is primed, high self-esteem people report greater willingness to enter situations of interdependence in their relationship (e.g., seeking a partner's support, giving a partner decision-making power). Low self-esteem people over-ride such impulses.

Nonetheless, when deprived of the executive strength needed to correct the automatic propensity to connect in such situations, they too pursue connectedness goals in response to stress (Murray et al., 2008).

Research Strategy and Hypotheses

The current research presents the first empirical tests of a new model of commitment-insurance. Existing research and theory have assumed that people idealize a partner to mask a partner's faults (Brickman, 1987; Gagne & Lydon, 2004; Murray, 1999). The present paper introduces the novel assumption that the autonomy costs inherent to interdependence activate compensatory efforts to attach renewed value to the partner. Our model posits that autonomy costs activate a procedural "valuing" rule that links such costs to the creation of compensatory value. Such heightened value in turn prompts a procedural "caring" rule that links strengthened commitment to the motivation to be responsive to the partner's needs. The likelihood of these procedural rules being corrected with contradictory deliberative sentiment depends on people's capacity (i.e., conscious control over their thoughts) and motivation (e.g., chronic self-esteem). To provide convergent support for the operation of the commitment-insurance system, we conducted two laboratory experiments and a longitudinal daily diary study of newlywed couples.

We begin with two laboratory experiments. These experiments examined the automatic activation and controlled correction of the "valuing" rule. In Experiment 1, we primed autonomy costs indirectly by leading people to ponder the costs and sacrifices a friend perceived them to be enduring in their relationship. In Experiment 2, we primed autonomy costs directly by leading people to consider the ways in which their partner's activities routinely thwarted their goals. We then measured automatic evaluations of the partner and explicit assessments of the partner's qualities, efficacy, and optimism about the future (i.e., positive illusions).

We expected autonomy costs to automatically activate the procedural "valuing" rule for both low and high self-esteem people. Consequently, we expected priming autonomy costs to activate more positive evaluations of the partner on associative (i.e., reaction time) measures of attitudes that limit the opportunity for conscious control and correction (Bargh, 2007). We also expected high self-esteem participants primed with such costs to express stronger beliefs in the value of their relationship on self-report measures of positive illusions that afforded the opportunity for conscious control. However, we expected low self-esteem people to correct or override the automatic propensity to attach greater value to the partner in response to costs when they are able to do so. Consequently, we expected low self-esteem people primed with autonomy costs to report less partner-valuing on the explicit measures of positive illusions.[2]

We then turn to a longitudinal daily diary study of newlywed couples. This study allowed us to examined the functionality of the commitment-insurance system – in both shaping short-

[2]Although the model stipulates that autonomy loss automatically activates the partner-valuing rule regardless of self-esteem, correcting this rule may well become automatic over time for people low in self-esteem given sufficient experience with specific threats (Murray et al., 2008, Experiment 7). We return to this point in the general discussion.

term feelings and behaviors and in promoting long-term satisfaction. Both members of the couple completed a measure of satisfaction and 14-days of daily diaries. In the diaries, each member of the couple separately reported on how their partner had (or had not) thwarted their personal goals each day. They also reported their evaluations of their partner and relationship each day. One year later, both members of the couple again completed a measure of satisfaction.

We expected to see the imprint of both the "valuing" and "caring" rules in the daily lives of these newlyweds. Specifically, we expected one day's experience with autonomy costs to actually trigger the attachment of greater value to the partner the next day. We expected such compensatory effects to be particularly evident for people high in self-esteem (because they are not motivated to correct). We also expected the cost-inspired perception of value to be both effective and functional. In the short-term of day-to-day life, we expected responding to autonomy costs by attaching greater value to the partner to increase people's willingness to respond selflessly to their partner's needs. Over the course of a year, we expected those people who were most likely to compensate for costs in the diary period to experience more satisfying relationships. That is, we expected individual differences in the strength of people's tendency to compensate for autonomy costs to predict their capacity to sustain satisfaction over time.

Our model thus posits one reason why low self-esteem people might be at greater risk of relationship difficulties. If compensating for autonomy costs is functional, correcting or overturning this propensity should leave low self-esteem people vulnerable to decreases in satisfaction over time. Accordingly, we expected people with low self-esteem to report relatively less satisfying relationships over the first year of marriage because they are less likely to compensate for the inevitable costs interdependence imposes. That is, we expected individual differences in the strength of people's tendency to compensate for costs to mediate (at least in part) the hypothesized relation between self-esteem and changes in relationship satisfaction.

Experiment 1

We utilized a relatively indirect manipulation of autonomy costs in Experiment 1. In designing this manipulation, we assumed that people often complain to their friends about how their partner can impinge on their personal goals. We therefore primed autonomy costs by leading people to ponder the costs a good friend identified in their romantic relationship. We asked experimental participants to think back to conversations where they were complaining and their friend identified significant costs in their relationship (e.g., partner's jealousy, lack of time, etc.). We asked participants in a normative costs control condition to identify problems that their friend perceived in relationships in general. This normative costs control condition thus allowed us to distinguish the effects of perceiving costs in one's own relationship from the effects of perceiving costs in relationships in general. Participants in an absolute control condition did not identify any costs or problems. We then measured implicit evaluations of the partner and people's explicit positive illusions about the partner. We expected low and high self-esteem participants primed with the costs a friend perceived in their relationship to evidence more positive implicit evaluations of their partner. We also

expected high self-esteem participants to compensate for the interdependence costs perceived by their friend by valuing the partner and relationship more on an explicit measure of positive illusions. However, when low self-esteem people had grater opportunity to correct positive and compensatory implicit sentiments on the explicit measures of positive illusions, we expected them to do so.

Method

Participants—Ninety-five undergraduates currently involved in exclusive relationships participated in exchange for course credit. Six participants were eliminated for failing to follow instructions or suspicion, leaving a sample of 89 (41 men). Participants averaged 19.4 years of age (SD=2.8) and they were involved in relationships averaging 18.4 months in length (SD = 15.9).

Procedure—The experimenter told participants they would be participating in a study on people's thoughts and feelings about their relationships. Participants completed the experiment on computer (via Media Lab). All participants first completed a questionnaire that included demographic questions (e.g., gender, age) and the Rosenberg (1965) self-esteem scale.

Next participants completed practice trials for the implicit partner evaluation task. This measure (adapted from Dodgson and Wood, 1998 and Murray, Derrick et al., 2008) tapped how quickly participants identified positive and negative traits as characteristic of their partner. In this task, faster reaction times to positive traits reflect more positive implicit evaluations of the partner. The experimenter introduced this task as a categorization task. Participants were told that words would appear on the screen (one at a time) and that they had to indicate whether each word, a person descriptor such as warm or an object descriptor such as car, could ever possibly be used to describe their partner (by pressing yes/no keys). For the practice trials, they responded to 15 person and 15 object descriptors. If participants responded incorrectly (e.g., responding "no" to warm or "yes" to car), they received an error message.

Participants in the experimental, personal costs condition then were asked to think of conversations with a good friend where participants voiced concerns about their relationship. Participants then provided brief, written descriptions of two of the problems in their relationship their friend identified in these discussions. They next received purportedly individualized computer feedback. This feedback indicated that University of Michigan researchers discovered that people generate more serious problems more quickly than mundane ones. The feedback went on to state that participants had generated the costs their friend perceived in their relationship more quickly than most people. The feedback then indicated that their speed in generating the problems meant that they were pretty troubled by the costs their friend perceived (which was not surprising given that friends are such good judges). Participants in the normative costs control condition generated two major costs their friend believed created problems in most relationships. Participants in a further control condition did not generate any problems.

All participants then completed the target trials for the implicit partner evaluation measure. This measure was comprised of 240 target trials (120 person descriptor words and 120 object descriptor words). The target words of interest were 17 positive interpersonal trait words (e.g., understanding, attractive, passionate, warm, forgiving, compassionate) and 13 positive competency words (e.g., competent, smart, skilled). Although we assumed that compensation would be more likely to surface in quicker positive associations to the partner than slower negative associations, we also included 17 negative interpersonal words (e.g., thoughtless, judgmental, unkind) and 19 negative competency words (e.g., dumb, lazy, clumsy). We also included 7 positive mood words (e.g., content, happy, joyful) and 7 negative mood words (e.g., angry, sad, guilty) for control purposes. The remaining words were fillers. The words were presented in a random order for each participant. Reaction times were recorded in milliseconds.[3] All participants then completed the explicit measures of partner-valuing or positive illusions. This measure included scales tapping perceptions of the partner's traits, optimism about the future, and efficacy. Participants were then probed for suspicion and debriefed.

Measures

Perceptions of the partner: This 20-item scale (α = .91), adapted from Murray et al. (1996a) asked participants to describe their partner's status on various positive (e.g., "kind and affectionate"; "intelligent"; "loving") and negative qualities (e.g., "distant", "critical and judgmental"; "controlling and dominant"). Participants rated where their partner stood on these qualities relative to the average/typical partner (1 = way below average, 9 = way above average). Negative qualities were reversed in creating the overall partner perceptions score.

Optimism: This 16-item scale (α = .93), adapted from Murray and Holmes (1997) asked participants to indicate whether specific positive and negative events were more or less likely to occur in the future of their relationship than the typical/average relationship (e.g., "the love my partner and I share continuing to grow"; "my partner and I always having compatible hopes and desires for our relationship"; "my partner and I always being able to share our innermost feelings with one another"; "my partner or I resenting the time we spend on our relationship"; "my partner and I running out of things to talk about"; "our relationship breaking up"). Participants rated the likelihood of these happening in their relationships as compared to the typical/average relationship (1 = much less likely in my relationship, 9 = much more likely in my relationship). Negative events were reversed in creating the overall optimism score.

Efficacy: This 9-item scale (α = .90), adapted from Murray and Holmes (1997), asked participants to rate how much control they possessed over events in their relationships (e.g., "by working together my partner and I can prevent undesirable events from occurring in our relationship"; "my partner and I sometimes feel helpless when we are confronted by a serious problem that we are not sure how to solve"; "through our joint efforts, my partner and I can create the ideal relationship we both desire"). Participants rated how much control

[3]As the task required "yes" responses to all person descriptors (as these words could all conceivably be used to describe the partner in some circumstance), reaction times to positive and negative words were not confounded with "yes" versus "no" responses (Dodgson & Wood, 1989).

they possessed relative to the typical/average relationship (1 = much less true of my relationship, 9 = much more true of my relationship). Lack of control items were reversed in the overall score.

Mood: This 9-item scale (α = .88) tapped current mood (e.g., “happy”; “angry”; “proud”; “sad”). Participants made these ratings on a 7-point scale (1 = not at all, 7 = very). Negative moods were reversed in the overall mood score.

Results

Did making the costs of interdependence salient by priming the problems a discerning friend perceived automatically activate more positive implicit evaluations of the partner? Did low, but not high, self-esteem participants then correct such compensatory responses on the explicit measures of positive illusions? We first created composite implicit and explicit evaluation measures. To create the implicit composite variables, we first subjected reaction times to each person and object word to a logarithmic transformation (Fazio, 1990). Within each word category (e.g., positive interpersonal), we then averaged response times for correct responses made within 3000 milliseconds. Next we created composite measures of positive and negative implicit evaluations by averaging response times to the positive interpersonal and positive competence and negative interpersonal and negative competence traits, respectively. To create the explicit composite variable of illusions (α = .90), we averaged responses to the perceptions of partner, efficacy, and optimism scales (each transformed to a z-score).

We then conducted hierarchical regression analyses predicting the dependent measures. On the first step of the regressions predicting the implicit composites, we entered reaction times to object words and to same-valence mood words as covariates. On the second step, we entered the centered main effects of self-esteem and two effect-coded contrasts (one comparing the personal costs condition against the combined control conditions; the other comparing the normative costs and absolute control conditions). We entered the two-way interactions on the final step. The regressions predicting the explicit or self-report dependent measures omitted the covariates. We discuss only those measures that revealed significant effects involving experimental condition. Table 1 contains the coefficients for the terms in the regression, as entered on each step of the regression analysis.

Positive Implicit Evaluations—The regression analysis predicting positive implicit evaluations of the partner revealed only the expected and significant main effect of the contrast comparing the personal costs condition against the combined control conditions. Participants primed with the costs a friend perceived in their own relationship (M = 862.2) were quicker to associate their partner with positive traits as compared to participants primed with the costs a friend perceived in most relationships (M = 926.6) and control participants (M = 904.6).

Positive Illusions—The regression analysis predicting the positive illusions composite revealed the expected and significant interaction between self-esteem and the contrast comparing the personal costs condition against the combined control conditions. Figure 2

presents the predicted scores for participants relatively low and high in self-esteem in each condition (one standard deviation below and above the mean, respectively). As expected, high self-esteem participants primed with the costs their friend perceived in their relationship tended to report stronger illusions than control participants, $\beta = .21$, $t(83) = 1.50$, $sr^2 = .02$, $p = .14$. In contrast, low self-esteem participants primed with the costs their friend perceived tended to report weaker illusions than control participants, $\beta = -.24$, $t(83) = -1.55$, $sr^2 = .02$, $p = .13$.

Divergence Between Implicit and Explicit Evaluations—Our hypotheses suggest that autonomy costs should increase the discrepancy between implicit and explicit sentiments among low self-esteem people. The results reported above are consistent with this idea, but the analyses did not test this three-way interaction logic (i.e., self-esteem by autonomy costs by implicit/explicit dependent measure). To test the statistical equivalent of the three-way interaction, we conducted a regression analysis predicting the difference between implicit and explicit evaluations from self-esteem, the condition contrasts, and the self-esteem by condition contrast interactions. To create the difference score, we first transformed response latencies on the positive implicit evaluations measure to a z-score. This transformation put response latencies on the same metric as the positive illusions measure. We then multiplied the response latency z-score by −1. This transformation scored the response latency measure in the same direction as the explicit measure; shorter than average latencies received a positive score (indicating more positive implicit evaluations). We then subtracted the standardized explicit measure from the standardized implicit measure. Positive discrepancies reflect more positive implicit than explicit evaluations. The regression analysis predicting the difference score revealed a marginally significant interaction between self-esteem and the condition contrast comparing the personal costs against the combined control conditions, $\beta = -.14$, $t(81) = -1.65$, $sr^2 = .02$, $p = .10$.[4] Because the omnibus interaction is not that sensitive to the interaction pattern we predicted, we proceeded to focused tests (Rosenthal & Rosnow, 1985). As expected, low self-esteem people primed with the costs their friend perceived in their relationship evidenced significantly more divergent implicit and explicit evaluations than combined controls, $\beta = .26$, $t(81) = 2.01$, $sr^2 = .03$, $p < .05$. The simple effect of condition for high self-esteem people was not significant, $\beta = -.04$, $t(81) < 1$, $sr^2 = .00$.

Manipulation Check—We assumed that participants would generate greater autonomy costs when describing the problems their friend perceived in their relationship than when describing the problems their friend perceived in most relationships. Two independent and blind coders rated the problems provided in personal and normative costs conditions for the degree to which the problem highlighted ways in which partners could interfere with one another's autonomy or goal pursuit (0 = no mention, 1 = mention). Examples included the partner interfering with time with friends, jealousy, the partner interfering with studies, the partner disapproving personal choices, and partner selfishness. The ratings averaged across coders, $r(66) = .74$, revealed that participants in the personal costs condition ($M = .41$) were

[4]We included reaction times to object words and reaction times to positive mood words as covariates in this analysis.

more likely to generate autonomy-related problems than the participants in the normative costs condition (M = .22), t(67) = 2.13, p < 05.

Discussion

Experiment 1 provided encouraging support for our hypotheses. Priming the autonomy costs a friend perceived automatically activated the "valuing" rule. Low and high self-esteem participants primed with the problems a friend perceived in their relationship evidenced more positive implicit evaluations of their partner. Cost primed participants were quicker to associate their partner with positive traits than control participants regardless of self-esteem. High self-esteem people also expressed such emboldened sentiments on measures that afforded the opportunity for conscious control. High self-esteem people in the personal costs condition tended to express stronger illusions than control participants. However, low self-esteem people over-turned the automatic activation of the "valuing" rule on the explicit measures. Low self-esteem participants in the personal costs condition tended to express weaker illusions than control participants. Indeed, for lows, priming autonomy costs significantly increased the discrepancy between their implicit and explicit sentiments. We conducted Experiment 2 to replicate these effects using a more direct manipulation of autonomy costs.

Experiment 2

In Experiment 2, we primed autonomy costs by leading people to ponder the ways in which their partner's activities constantly thwarted their goals. We asked experimental participants to indicate how often specific daily pursuits (e.g., watching TV, sleeping) had been interrupted by their partner. To distinguish the effects of partner-imposed autonomy costs from the general inability to pursue one's goals, we asked participants in a thwarted outcomes control condition to indicate how often specific daily pursuits had been interrupted by any cause. Participants in a further control condition did not do either task. We then measured implicit evaluations of the partner and positive illusions. We expected low and high self-esteem participants primed with the loss of their autonomy at their partner's hands to evidence more positive implicit associations to their partner. We also expected high self-esteem participants to compensate for the autonomy costs imposed by such goal thwarting by reporting greater partner-valuing on the explicit measure of positive illusions. However, when low self-esteem participants had the opportunity to correct the automatic activation of the partner-valuing rule on the explicit measures, we again expected them to do so.

Method

Participants—One hundred nineteen undergraduates currently involved in exclusive relationships participated in exchange for course credit (31 men). Participants averaged 18.9 years of age (SD=1.2) and they were involved in relationships averaging 17.9 months in length (SD = 12.3).

Procedure—The experimenter told participants they would be participating in a study on people's thoughts and feelings about their relationships. Participants completed the experiment on computer (via Media Lab). All participants first completed a questionnaire

that included demographic questions (e.g., gender, age) and the Rosenberg (1965) self-esteem scale.

Participants then completed practice trials for the implicit partner evaluation task utilized in Experiment 1. Participants in the experimental, autonomy loss condition then completed a purported "Autonomy Survey" developed at the University of Michigan. This survey asked participants to indicate whether specific events where they could not meet their goals had ever happened to them because of their relationship with their partner (e.g., "I couldn't watch something I wanted to watch on TV"; "I had to go out with friends of my partner that I didn't like"; "I had my sleep disrupted"; "I ran out of something because my partner used the last of it"; "I spent time with my partner when I wanted to work"). These participants then learned that the survey tapped how many changes people make in their life to accommodate to being involved in a relationship. They then received purportedly personalized feedback indicating that they had made changes in almost every domain of their lives as a consequence of being in the relationship, and that they no longer had as much control over their life as they used to have. Participants in the thwarted outcome control condition completed an "Event Survey." This survey asked participants to indicate whether specific events where they could not meet their goals had ever happened to them (e.g., "I couldn't watch something I wanted to watch on TV"; "I had my sleep disrupted"). Participants in a further absolute control condition did not complete a survey. All participants then completed the target trials for the implicit partner evaluation measure utilized in Experiment 1. They then completed the measures tapping perceptions of the partner's qualities (α = .89), optimism (α = .92), efficacy (α = .88), and mood (α = .87) also utilized in Experiment 1. Participants then completed a manipulation check tapping whether they had sacrificed autonomy. Participants were then probed for suspicion and debriefed.

Measures

Sacrificed autonomy: This 5-item scale (α = .83) tapped how much independence people had given up to be in their relationship (e.g., "I've made a number of changes in my life to adjust to my partner"; "I've given up a lot of my independence since I've gotten involved with my partner"). Participants responded on 7-point scales (1 = not at all true, 7 = completely true).

Results

Did making the autonomy costs of interdependence salient by priming one's lost autonomy automatically activate more positive implicit evaluations of the partner? Did low, but not high, self-esteem participants then correct such automatic compensation on the explicit measures? We first created composite measures of implicit and explicit evaluations exactly as we did in Experiment 1. We then conducted hierarchical regression analyses predicting the dependent measures. On the first step of the regressions predicting the implicit composites, we entered reaction times to object words and to same-valence mood words. On the second step, we entered the centered main effects of self-esteem and two effect-coded contrasts (one comparing the autonomy loss condition against the combined control conditions; the other comparing the thwarted outcomes and absolute control conditions). We entered the two-way interactions on the final step. The regressions predicting the explicit or

self-report dependent measures omitted the covariates. We again discuss only the significant effects involving experimental condition for the sake of simplicity. Table 2 contains the coefficients for each of the terms in the regression, as entered on each step of the regression analysis.

Positive Implicit Evaluations—The regression analysis predicting positive implicit evaluations of the partner revealed only the expected and significant main effect of the contrast comparing the autonomy loss condition against the combined control conditions. Participants primed with how their partner had thwarted their goals (M = 829.9) were quicker to associate their partner with positive traits than participants in the thwarted outcomes (M = 867.5) and control (M = 856.10) conditions.

Negative Implicit Evaluations—The regression analysis predicting negative implicit evaluations of the partner revealed a significant interaction between self-esteem and the contrast comparing the autonomy loss and combined control conditions. Figure 3 presents the predicted scores (for participants one standard deviation below and above the mean in self-esteem in each condition). When primed with how their partner had thwarted their goals, high self-esteem participants were slower to associate their partner with negative traits than participants in the thwarted outcomes and control conditions, $\beta = .16$, $t(99) = 1.97$, $sr^2 = .01$, $p = .05$. No significant simple effect emerged for participants low in self-esteem, $\beta = -.09$, $t(99) = -1.14$, $sr^2 = .00$. Although unexpected, this interaction might have emerged because responding “yes” to negative traits is sufficiently cognitively demanding (as evidenced by higher error rates for negative than positive traits) that it made this aspect of the reaction time task “relatively” more controlled.

Positive Illusions—The regression analysis predicting positive illusions ($\alpha = .89$) revealed the expected and significant interaction between self-esteem and the contrast comparing the autonomy loss and combined control conditions. Figure 4 presents the predicted scores. When primed with how their partner had thwarted their goals, high self-esteem participants actually expressed stronger illusions, $\beta = .18$, $t(113) = 1.63$, $sr^2 = .02$, $p = .11$. Low self-esteem participants reported weaker illusions when primed with this autonomy cost, $\beta = -.20$, $t(113) = -1.73$, $sr^2 = .02$, $p = .09$.

Divergence Between Implicit and Explicit Evaluations—We created a difference score between implicit and explicit evaluations as in Experiment 1. The regression analysis predicting the difference score revealed a significant interaction between self-esteem and the condition contrast comparing the autonomy loss against the combined control conditions, $\beta = -.18$, $t(11) = -2.46$, $sr^2 = .03$, $p < .05$. Low self-esteem people primed with ways in which their partner thwarted their goals evidenced significantly more divergent implicit and explicit evaluations than controls, $\beta = .25$, $t(111) = 2.53$, $sr^2 = .03$, $p < .05$. The simple effect for high self-esteem people was not significant, $\beta = -.08$, $t(111) < 1$, $sr^2 = .00$.

Sacrificed Autonomy—The regression analysis predicting perceptions of the partner-induced loss of one’s independence and autonomy revealed a significant main effect of the contrast comparing the autonomy loss and combined control conditions. Participants in the

autonomy loss condition (M = 4.41) reported sacrificing more of their autonomy than participants in the thwarted outcomes (M = 3.71) and control conditions (M = 3.65).

Discussion

Experiment 2 provided further support for our hypotheses. Priming the interdependence costs imposed by a partner thwarting one's goals automatically activated the "valuing" rule. People primed with the loss of autonomy evidenced more positive implicit evaluations of their partner regardless of self-esteem. High self-esteem participants primed with autonomy loss even expressed less negative implicit evaluations of their partner. Highs primed with interdependence costs also expressed stronger illusions when they had the conscious control to correct such sentiments (if they desired). However, low self-esteem people took the opportunity to correct their positive implicit attitudes toward their partner on the explicit measures. When primed with interdependence costs, low self-esteem participants expressed weaker illusions. Indeed, for lows, priming the autonomy costs of interdependence again increased the discrepancy or inconsistency between their implicit and explicit sentiments toward their partner.

A Meta-Analytic Summary of the Experiments

Both experiments revealed the expected and significant main effects of condition predicting positive implicit evaluations and the expected and significant self-esteem by autonomy-costs interactions predicting explicit illusions. However, the interaction predicting the discrepancy between implicit and explicit sentiments was only marginally significant in Experiment 1. In both experiments, the simple effect contrasts sometimes missed conventional levels of significance. To examine the robustness of the effects, we conducted a meta-analysis using the method of combining $\underline{t}$-values (Winer, 1971). This meta-analysis examined the robustness of the main effect of autonomy costs vs. combined control conditions contrast on positive implicit evaluations and the robustness of the self-esteem by autonomy costs vs. combined control condition interactions on both positive illusions and the discrepancy between implicit and explicit evaluations of the partner.

It revealed strong evidence for the robustness of our effects. The main effect of autonomy costs in increasing positive implicit evaluations of the partner was significant across experiments, $d = -.41$, $\underline{z} = -2.82$, $\underline{p} < .01$. The self-esteem by autonomy-costs interaction predicting positive illusions was also significant, $\underline{d} = .47$, $\underline{z} = 3.25$, $\underline{p} < .01$. Decomposing the meta-analytic interaction also revealed that the simple effect of autonomy costs on positive illusions was significant and opposite for high and low self-esteem people. High self-esteem people primed with interdependence costs reported stronger illusions, $\underline{d} = .35$, $\underline{z} = 2.39$, $\underline{p} < .05$, mirroring the implicit compensation effect. Low self-esteem people primed with costs reported weaker illusions, overturning the implicit compensation effect, $\underline{d} = -.33$, $\underline{z} = -2.26$, $\underline{p} < .05$. The self-esteem by autonomy-costs interaction predicting the difference between implicit and explicit evaluations was also significant, $\underline{d} = -.41$, $\underline{z} = -2.87$, $\underline{p} < .01$. Autonomy costs created significantly more divergent implicit and explicit evaluations for low, $\underline{d} = .46$, $\underline{z} = 3.17$, $\underline{p} < .01$, but not high, $\underline{d} = .12$, $\underline{z} = 0.84$, self-esteem people.

In each experiment, we included control conditions to separate the effects of priming negativity (i.e., the normative costs and thwarted outcome conditions) from priming autonomy costs (i.e., the personal costs and autonomy loss conditions). In combining these negativity control conditions with the absolute control conditions, we might have provided an overly liberal test of our hypothesis that autonomy costs have effects distinct from negativity per se.

We conducted a further meta-analysis to evaluate this possibility. This meta-analysis combined the results of analyses that utilized contrasts comparing the autonomy loss and negativity conditions within each experiment. The main effect of the autonomy costs vs. negativity condition contrast in predicting implicit evaluations was significant across experiments, $\underline{d} = -.38$, $\underline{z} = -2.56$, $\underline{p} < .05$. The self-esteem by autonomy costs vs. negativity condition interaction predicting positive illusions was also significant, $\underline{d} = .40$, $\underline{z} = 2.68$, $\underline{p} < .05$. High self-esteem people reported stronger illusions in the autonomy costs than negativity condition, $\underline{d} = .31$, $\underline{z} = 2.03$, $\underline{p} < .05$. Low self-esteem people reported weaker illusions in the autonomy costs than negativity condition, $\underline{d} = -.28$, $\underline{z} = 1.97$, $\underline{p} < .05$. The self-esteem by autonomy costs vs. negativity condition interaction predicting the difference between implicit and explicit evaluations was also significant, $\underline{d} = -.31$, $\underline{z} = -2.14$, $\underline{p} < .05$. Compared against the negativity condition, autonomy costs elicited significantly more divergent implicit and explicit evaluations for low, $\underline{d} = .40$, $\underline{z} = 2.53$, $\underline{p} < .05$, but not high, $\underline{d} = -.09$, $\underline{z} = -0.56$, self-esteem people. A still further meta-analysis comparing the autonomy costs to absolute control conditions and the negativity to absolute control conditions revealed that autonomy costs elicited the expected effects on the implicit and explicit measures. The negativity conditions did not.[5] These results suggest that the commitment-insurance system operates to defend against the costs to one's autonomy that interdependence imposes; it does not simply ward off negativity.[6]

Autonomy Costs and Compensatory Valuing in Newlyweds

The experiments suggest that autonomy costs automatically elicit more positive implicit evaluations of the partner regardless of self-esteem. However, low, but not high, self-esteem people overturn these compensatory implicit sentiments on explicit measures of positive illusions. We now examine the existence and functionality of cost-inspired partner-valuing in the daily lives of newlyweds. We first replicate the dynamics we observed in the

[5]The third meta-analysis combined the results of analyses that utilized contrasts comparing the autonomy costs against the absolute control condition and the negativity condition against the absolute control condition for each experiment. As expected, the main effect of the autonomy costs vs. control condition contrast in increasing positive implicit evaluations of the partner was significant across experiments, $\underline{d} = -.33$, $\underline{z} = -2.27$, $\underline{p} < .05$. However, the main effect of the negativity vs. control condition contrast was not significant, $\underline{d} = .06$, $\underline{z} = .37$. As expected, the self-esteem by autonomy costs vs. control condition interaction predicting positive illusions was also significant, $\underline{d} = .38$, $\underline{z} = 2.62$, $p < .05$. High self-esteem people tended to report stronger illusions in the autonomy costs than control condition, $\underline{d} = .23$, $\underline{z} = 1.67$, $\underline{p} < .10$. Low self-esteem people reported weaker illusions in the autonomy costs than control condition, $\underline{d} = -.30$, $\underline{z} = -2.02$, $\underline{p} < .05$. However, the self-esteem by negativity vs. control condition interaction predicting positive illusions was not significant, $\underline{d} = -.06.$, $z = -1.08$. The self-esteem by autonomy costs vs. control condition interaction predicting the difference between implicit and explicit evaluations was also significant, $\underline{d} = -.39$, $\underline{z} = -2.72$, $\underline{p} < .05$. Compared against the absolute control condition, autonomy costs elicited significantly more divergent implicit and explicit evaluations for low, $\underline{d} = .41$, $\underline{z} = 2.99$, $\underline{p} < .01$, but not high, $\underline{d} = -.11$, $\underline{z} = -0.85$, self-esteem people. However, the self-esteem by negativity vs. control condition interaction predicting the difference score was not significant, $\underline{d} = -.04$, $\underline{z} = -0.32$.

[6]In each experiment, we conducted further analyses to examine whether satisfaction, gender, or relationship length moderated the obtained effects. These analyses did not reveal any consistent and significant moderating effects of these variables and the observed effects were still significant when we controlled for these further moderators.

experiments with dating participants among newlyweds. In day-to-day life, we expected costs to one's autonomy to make high self-esteem people in particular love and value their partner more. We then examine whether such compensatory dynamics are indeed functional in stabilizing new marriages. In the short-term, compensating for costs should strengthen people's motivation to be responsive to their partner's needs on a day-to-day basis (i.e., the "caring" rule). That is, we expected valuing the partner to more strongly compel responsiveness when partner-valuing was spurred by autonomy costs than when it was not. In the longer-term, we expected stronger tendencies to compensate for costs to predict increases in satisfaction over the first year of these new marriages. If low self-esteem people were indeed less likely to compensate for costs, we expected their marriages to suffer as a result. Specifically, we expected people with low self-esteem to report relative declines in satisfaction over their first year of marriage because they did not readily compensate for the autonomy costs that interdependence imposed.

Method

Participants—Two hundred twenty-two couples married between two and six months participated in an ongoing 7-phase longitudinal study of marriage. Couples were recruited from local City Clerk's offices when applying for marriage licenses. Seven couples were excluded because the PDA recorded fewer than 10 diary days (3 couples) or because they failed to follow instructions (4 couples). These couples were all in their first marriages and they had no children. Their mean age was 27.1 years. The sample was fairly well-educated (24% had high school diplomas, 50% had college/university degrees, and 25% had graduate/professional degrees) and middle to upper class (14% had combined income less than $40,000, 69% had combined income between $40,000 and $100,000, and 17% had a combined income greater than $100,000). One-hundred seventy-eight couples returned to the laboratory and completed follow-up measures after one year. Couples received payment for each phase of data collection.[7]

Procedure—At the initial assessment, the research assistant seated each member of the couple at a separate computer station and then asked each person to complete the background measures (via Media Lab). The research assistant then introduced the procedures for completing the daily diary on a Dell Axim PDA. Participants were told to begin their diaries the following day, to complete the diaries before going to bed, that their responses were anonymous and confidential, and that they should not discuss their diaries with one another. (The PDA was programmed such that participants were unable to complete the diary until the evening hours.) Both members of the couple then reviewed the questions in the electronic diary to ensure that they understood all of the items. The couple then set up a follow-up appointment for at least 2 weeks after the orientation session. Each member of the couple left the laboratory with a PDA and a reminder sheet that summarized the procedures. They returned to the lab after 14 days of data collection to complete a questionnaire that assessed their experiences in completing the PDAs. The research assistant

[7]Thirty-seven of the original 215 couples included in phase one analyses did not complete the 12-month follow-up (an attrition rate of 17%). Four couples had separated or divorced, seven couples could not be located, five couples declined participation, twenty couples agreed to participate, but did not return for (multiple) scheduled laboratory appointments, and one couple was dropped for being non-compliant with laboratory procedures.

then described the broad purposes of the study, paid, and thanked each couple. The couples then returned to the laboratory one year later and completed follow-up measures.

Background Measures—The computerized background questionnaire (administered initially and again at one year) asked participants for demographic information (i.e., gender, age, ethnicity, highest level of education, annual salary). It also contained self-esteem (Rosenberg, 1965) and partner- and relationship-evaluation measures. We detail only those measures relevant to the current paper.

Satisfaction: This 4-item measure (α = .86), adapted from Murray et al. (2000), tapped people's global evaluations of their marriage (e.g., "I am extremely satisfied with my relationship", "My relationship with my partner is very rewarding"). Participants responded to these items on 8-point scales (0 = not at all true, 8 = completely true).

The Electronic Diary Record—The electronic diary program indexed the events and emotional experiences of the day. Each day, participants indicated whether each of 91 events had occurred. (Each event appeared on the PDA screen and participants used the stylus to select yes/no). General categories of events included interactions with the spouse, success or failure at work, and managing household/family responsibilities. They also rated their feelings on 42 scales. (Each feeling question appeared on the screen and participants used the stylus to select a scale point indicating the strength of their experience of that feeling). Feeling categories included items tapping self-evaluations, perceptions of the partner's regard, perceptions of the partner, and evaluations of the relationship. We detail only those questions relevant to the current paper.

Measures

Autonomy costs: This 5-item index tapped mundane events that involved the partner thwarting or interfering with one's personal goals (i.e., "My partner did what he/she wanted to do instead of what I wanted him/her to do"; "My partner used the last of something I needed and didn't replace it"; "My partner didn't do something he/she told me he/she would do"; "My partner contradicted me in front of others"; "My partner wouldn't talk about an issue I wanted to discuss"). Participants indicated whether each event occurred (1 = yes, 0 = no).

Partner valuing: This 3-item measure (α = .76) tapped the value people attached to their partner. Two items tapped positive sentiment (i.e., "In love with my partner"; "My partner is a great partner") and one item tapped compensatory thinking (i.e., "Did your interactions with your partner make you think more about his/her positive or negative qualities?"). Participants responded to the sentiment items on 7-point scales anchored, 0 = not at all, 6 = especially, and the compensation item on a 7-point scale anchored, 1 = positive, 4 = mixed, 7 = negative. Responses to the compensation item were reverse-scored and then re-scaled from 0 to 6.

Partner responsiveness: This 6-item index tapped the partner's observed willingness to meet one's needs and provide responsive care (i.e., "My partner listened to and comforted

me"; "My partner helped me solve a problem I was having"; "My partner did a chore that is normally my responsibility"; "My partner did something he/she didn't really want to do because I wanted to do it"; "My partner put my tastes ahead of his/her own"; "My partner complimented or praised me"). Participants indicated whether each event occurred (1 = yes, 0 = no).

Results

Did having a partner thwart one's goals actually result in people valuing their partner more? And did attaching greater value to the partner in turn stabilize relationships by promoting responsive behavior in the short-term and greater satisfaction over the longer term? We first examine the existence and functionality of cost-inspired partner-valuing in the short-term of daily life. We then examine its longitudinal effects on satisfaction.

Commitment-Insurance Dynamics in Daily Life—Because daily dairy data obtained from couples has a nested or non-independent structure, we utilized the multivariate feature of the multi-level modeling program MlwiN to test the daily hypotheses (Goldstein, Rasbash, Plewis, Draper, Browne, Yang, Woodhouse & Healy, 1998). We modeled our data as a three-level nested structure with within-person across-day effects making up the lowest level (e.g., autonomy-costs to partner-valuing), between-person effects (e.g., self-esteem) making up the second level, and a variable representing gender within couple making up the highest level.[8] This approach simultaneously estimates two regression equations, one for women, and one for men, controlling for the interdependence between measures taken on two people within a dyad. It also allows tests of gender differences.

The valuing rule: We first examined whether Sally's perception of Harry as thwarting her goals predicted her evaluating Harry all the more positively on subsequent days.[9] We expected to find a significant and positive lagged within-person effect of autonomy costs on changes in partner-valuing. We also expected to find a significant cross-level interaction. That is, we expected self-esteem to moderate the size of the within-person slope linking yesterday's autonomy costs on today's partner-valuing. The equations we tested follow:

$$\mathrm{Y_{Wt}} = B_{0\mathrm{W}} + B_{1\mathrm{W}}\mathrm{Y_{t-1}} + B_{2\mathrm{W}}\mathrm{C_{t-1}} + \mathrm{B_{3W}Z} + \mathrm{B_{4W}ZC_{t-1}} + \mathrm{v_{0W}} + \mathrm{u_W} \quad (1)$$

$$\mathrm{Y_{Mt}} = B_{0\mathrm{M}} + B_{1\mathrm{M}}\mathrm{Y_{t-1}} + B_{2\mathrm{M}}\mathrm{C_{t-1}} + \mathrm{B_{3M}Z} + \mathrm{B_{4M}ZC_{t-1}} + \mathrm{v_{0M}} + \mathrm{u_M} \quad (2)$$

Equation 1 represents the effects for women (W); equation 2, the effects for men (M). We predicted today's level of partner-valuing (Y) from an average level term (B_0, an intercept that varies across people and is a "random coefficient"), partner-valuing on the prior day

[8]This approach is essentially identical to the data structure used in the classic studies by Barnett and colleagues (e.g., Barnett, Marshall, Raudenbush, & Brennan, 1993; Barnett, Raudenbush, Brennan, Pleck & Marshall, 1995; Raudenbush, Brennan, & Barnett, 1995), except that it exchanges the use of multiple dummy variables to indicate gender for the use of a multivariate command that controls how effects are estimated simultaneously for men or women within a couple.

[9]We examined cross-day or lagged effects so that we could provide clearer evidence that autonomy costs compel increases in partner-valuing. Examining same-day associations would not allow us to determine whether costs inspire compensatory partner-valuing or whether valuing a partner decreases people's tendency to perceive autonomy costs.

(the coefficient B_1, a "fixed effect" that captures the average within-person stability slope across people), autonomy costs on the prior day (B_2, another fixed effect), the between-person moderator, chronic self-esteem (B_3), the cross-level interaction between self-esteem and the lagged effect of autonomy costs (B_4), an error term (v_0) that reflects the deviation of each person's average from the overall average, and an error term (u) that reflects each person's daily deviation from his or her own mean on Y. In these equations, all of the daily level predictors were centered on each person's mean for that variable. Significant effects for daily level variables reflect the effects of being high versus low relative to one's own mean. We centered the between-person variable, self-esteem, on the sample means for women and men. Effects of self-esteem reflect the effect of being high versus low relative to the sample mean.

After obtaining estimates for this preliminary model, we tested for gender differences in the size of the coefficients. We did this by comparing the deviance of a model that constrained a corresponding coefficient to be equal for men and women (e.g., B_2, the cross-day effect of interdependence costs on partner-valuing) to the deviance of a model that allowed this coefficient to vary for men and women. As these model tests revealed no significant gender differences, we pooled all of the coefficients across gender. Table 3 contains the coefficients. As expected, interdependence costs did indeed increase partner-valuing on subsequent days. The pooled within-person lagged effect of interdependence costs was significant and positive. The pooled between-person effect of self-esteem was also significant and positive. People with high self-esteem valued their partner more than people with low self-esteem across days.

As expected, the cross-level self-esteem by autonomy costs interaction was also significant. Figure 5 illustrates the nature of the costs-valuing slope for people one standard deviation above and below the mean on self-esteem. Replicating the effects we observed on the explicit measures in the experiments, high, but not low, self-esteem newlyweds responded to one day's autonomy costs by valuing their partner more the next day. We decomposed this interaction into the simple effects of autonomy costs for people one standard deviation above and below the mean in self-esteem (Aiken & West, 1991). The pooled simple slope linking one day's autonomy costs to the next day's partner-valuing was positive and significant for people high in self-esteem, $\underline{b} = .101$, SE = .032, $\underline{z} = 3.16$, $\underline{p} < .01$. The corresponding simple slope was near zero and non-significant for people low in self-esteem, $\underline{b} = .007$, SE = .031, $\underline{z} = 0.23$.[10], [11]

A number of alternative explanations for these results exist. First, high self-esteem people might value their partner more on days after they experienced more autonomy costs because partners generally become better behaved overnight. That is, Sally might value Harry more on Tuesday after he thwarted her goals on Monday because Harry behaves better on

[10]We specified the lagged effect of autonomy costs as fixed rather than random because specifying it as random did not significantly improve the fit of the model. We nonetheless examined whether self-esteem moderated the size of the autonomy costs to partner-valuing slope because the test of the predicted cross-level interaction has greater power to detect between person variation in slopes than the deviance test of random slopes (Snijders & Bosker, 1999).

[11]We estimated a further model that included a term representing the curvilinear effects of autonomy costs and its interaction with self-esteem. Neither term was significant.

Tuesday. To rule this out, we conducted two further analyses that controlled for Harry's behavior. First, we examined whether Monday's autonomy costs elicit greater partner-valuing on Tuesday because Harry imposes fewer such costs on Tuesday. That is, we estimated a model that added the same-day effects of autonomy costs and its cross-level interaction with self-esteem to Equations 1 and 2. We still found a significant lagged effect of autonomy costs on partner valuing, b = .049, SE = .022, z = 2.23, p < .05, and a marginally significant cross-level self-esteem by yesterday's autonomy costs interaction, b = .047, SE = .025, z = 1.88, p = .06. Then, we examined whether Monday's autonomy costs elicit greater valuing on Tuesday because Harry believes more responsively on Tuesday. That is, we estimated a model that added Sally's same-day perception of Harry's responsive behaviors and its cross-level interaction with self-esteem to Equations 1 and 2. We still found the significant lagged effect of autonomy costs on partner-valuing, b = .050, SE = .022, z = 2.27, p < .05, and a marginally significant cross-level self-esteem by yesterday's autonomy costs interaction, b = .048, SE = .025, z = 1.92, p < .06.

Second, high self-esteem people might value their partner in response to autonomy costs because their partners apologize on the days after they are more vexing. To examine this possibility, we estimated a further model that added Sally's same-day perception that Harry apologized to her and its cross-level interaction with self-esteem to Equations 1 and 2. We still found the significant lagged effect of autonomy costs on partner-valuing, b = .050, SE = .022, z = 2.27, p < .05, and a marginally significant cross-level self-esteem by yesterday's autonomy costs interaction, b = .048, SE = .025, z = 1.92, p < .06. We also found a parallel significant lagged effect of autonomy costs, b = .058, SE = .023, z = 2.52, p < .05, and a significant cross-level self-esteem by autonomy costs interaction, b = .066, SE = .026, z = 2.54, p < .05, when we added Harry's belief that he apologized and its cross-level interaction with Sally's self-esteem.

Third, autonomy costs might inspire compensatory partner-valuing for people high in self-esteem because such costs draw their attention to their partner. The partner's increased salience might then focus high self-esteem people on their partner's perceived positive qualities, heightening their subsequent value. To examine the possibility that costs draw attention to the partner, we added yesterday's feelings of closeness to the partner (assessed daily on a 7-item overlapping circles measure modeled after Aron, Aron & Smollen, 1992) and its cross-level interaction with self-esteem to Equations 1 and 2. This measure of closeness captures the extent to which people include the partner in the self, and thus, directly captures the degree to which the partner is salient to the self. We still found the significant lagged effect of autonomy costs on partner valuing, b = .067, SE = .023, z = 2.91, p < .01, and the significant cross-level self-esteem by autonomy costs interaction, b = .064, SE = .026, z = 2.46, p < .05.

Fourth, high self-esteem people might compensate more for costs because there is something about the partners of high self-esteem people that makes compensating for costs easier. Perhaps the partners of highs impose fewer such costs. To examine this possibility, we estimated a further model that added the average level of autonomy costs perceived across days and its cross-level interaction with self-esteem to Equations 1 and 2. We still found a significant lagged effect of autonomy costs on partner valuing, b = .060, SE = .027, z = 2.22,

p < .05, and the significant cross-level self-esteem by autonomy costs interaction, b = .052, SE = .026, z = 2.00, p < .05. Instead, perhaps the partners of high self-esteem people are likely to be high in self-esteem themselves (and, thus, generally easier to perceive positively). To examine this possibility, we added the partner's self-esteem and its cross-level interaction with autonomy costs to Equations 1 and 2. We still found a significant lagged effect of autonomy costs on partner valuing, b = .055, SE = .023, z = 2.39, p < .05, and a marginally significant cross-level self-esteem by autonomy costs interaction, b = .049, SE = .026, z = 1.88, p = .06.

In combination, the above results suggest that Sally's greater valuing of Harry in response to costs is not just a result of Harry being less costly, becoming more apologetic, or becoming more salient in one's focus of attention. However, it might not be autonomy costs per se that motivate compensatory-valuing. Instead, any ill-mannered behavior on the partner's part might have similar effects. To examine the limiting conditions on the compensatory-valuing effect, we estimated a further model that also included the partner's perceived rejecting behavior on the prior day and its cross-level interaction with self-esteem. Rejecting behaviors included events such as being insulted by one's partner, being pushed or hit, being misled, or being yelled at by the partner. We still found a lagged effect of autonomy costs, b = .045, SE = .024, z = 1.88, p < .06, and a significant cross-level self-esteem by autonomy costs interaction in this analysis, b = .067, SE = .028, z = 2.39, p < .05. In contrast, the lagged effect of perceived rejecting behaviors, b = .017, SE = .016, z = 1.06, and its cross-level interaction with self-esteem were not significant, b = −.016, SE = .018, z = .89. We also estimated a further model that included the incidence of conflict on the prior day and its cross-level interaction with self-esteem. We still found a lagged effect of autonomy costs, b = .047, SE = .023, z = 2.04, p < .05, and a significant cross-level self-esteem by autonomy costs interaction in this analysis, b = .058, SE = .027, z = 2.15, p < .05. In contrast, the lagged effect of conflict, b = .032, SE = .021, z = 1.52, and its cross-level interaction with self-esteem were not significant, b = −.008, SE = .020, z = .40. Therefore compensatory-valuing seems to be relatively specific to the structural and unavoidable restrictions that interdependence imposes on one's goal pursuits. It does not necessarily extend to partner's more intentionally hurtful bad behaviors.

The caring rule: Does Sally attaching greater value to Harry in response to autonomy costs heighten her observed responsiveness to his needs on subsequent days? To answer this question, we predicted Harry's perception of Sally's responsive behavior on Tuesday from Sally's tendency to compensate for Monday's autonomy costs by valuing Harry more Tuesday. That is, we examined whether the within-person interaction between Monday's autonomy costs and changes in partner-valuing Tuesday (i.e., the strength of the cost-inspired partner-valuing slope) predicted Sally's responsiveness toward Harry on Tuesday, as assessed by Harry. This within-person interaction examines whether changes in partner valuing actually compel stronger increases in responsiveness when costs are countered by the perception of greater value in the partner. The equations we utilized to test the short-term functionality of compensation follow:

$$\mathrm{Y}_{\mathrm{Wt}}=B_{0\mathrm{W}}+B_{1\mathrm{W}}\mathrm{Y}_{\mathrm{t}-1}+B_{2\mathrm{M}}\mathrm{I}_{\mathrm{t}-1}+B_{3\mathrm{M}}\mathrm{I}_{\mathrm{t}}+B_{4\mathrm{M}}\mathrm{C}_{\mathrm{t}-1}+B_{5\mathrm{M}}\mathrm{I}_{\mathrm{t}}\mathrm{C}_{\mathrm{t}-1}+\mathrm{v}_{0\mathrm{W}}+\mathrm{u}_{\mathrm{W}} \quad (1)$$

$$Y_{Mt} = B_{0M} + B_{1M} Y_{t-1} + B_{2W} I_{t-1} + B_{3W} I_t + B_{4W} C_{t-1} + B_{5W} I_t C_{t-1} + v_{0M} + u_M \quad (2)$$

Equation 1 represents the effects for women (W); equation 2, the effects for men (M). We predicted today's perceptions of the partner's responsive behavior (Y) from an average level term (B_0, a random coefficient), perceptions of the partner's responsive behavior on the prior day (B_1, a fixed effect), the partner's level of valuing on the prior day (B_2, a fixed effect), the partner's level of valuing on the same day (B_3, a fixed effect), the partner's level of autonomy costs on the prior day (B_4, a fixed effect), the within-person interaction between the partner's valuing today and the prior day's autonomy costs (B_5, a fixed effect), an error term (v_0) that reflects the deviation of each person's average from the overall average, and an error term (u) that reflects each person's daily deviation from his or her own mean on Y.

Table 4 contains the results of a model that pooled corresponding coefficients across gender (as we found no significant gender differences). People perceived their partner as behaving more responsively on days when their partner valued them more. That is, the within-person effect of the partner's valuing was significant and positive. As expected, the within-person interaction between changes in today's valuing of the partner and the prior day's autonomy costs was also significant and positive. Figure 6 illustrates the association between Sally's valuing of Harry and Harry's perception of her responsiveness on days after Sally identified relatively high versus low autonomy costs. We first examined the simple effects of partner-valuing following days with high rather than low autonomy costs (defined as one standard deviation above and below the mean, responsively). Partner-valuing more strongly compelled increases in objective responsiveness across days when autonomy costs were high, b = .221, SE = .025, z = 8.84, p < .001, than when autonomy costs were low, b = .153, SE = .026, z = 5.88, p < .001. We then considered the simple effects of autonomy costs when such costs were countered by relatively high rather than low increases in partner-valuing. Higher autonomy costs on the prior day predicted more objectively responsive behavior when countered by greater increases in partner-valuing, b = .091, SE = .041, z = 2.22, p < .05. However, autonomy costs on the prior day had no such effect when countered by weaker increases in partner valuing, b = - .019, SE = .042, z = .45. As our functional perspective anticipates, the countering of costs with partner-valuing does indeed increase people's willingness to respond selflessly to the partner's needs – as "objectively" indexed by the recipient of these responsive behaviors.

Commitment-Insurance Dynamics and Longitudinal Change—These daily effects provide preliminary support for our hypothesis that the commitment-insurance system functions as a threat-management system – one that protects the continued state of clarity or purpose needed to motivate responsiveness and sustain stable relationship bonds. We examined the state of the newlyweds' marriage one year after the diary assessment to provide more direct support for this functional hypothesis. In these analyses, we examined whether individual differences in the tendency to compensate for autonomy costs by valuing the partner predicted long-term changes in satisfaction. (We included only those couples with complete data across the two time periods in these analyses).

As the first step, we obtained individual differences indices (i.e., residual within-person slopes) representing how much people compensate for one day's autonomy costs by valuing their partner more on subsequent days. To obtain cost-inspired valuing indices, we conducted multi-level models predicting today's partner-valuing from an intercept term, the fixed effect of yesterday's valuing, and the random effect of yesterday's autonomy costs (and the appropriate errors terms). In these models, the residual component of the intercept for each person captures how much he or she valued the partner across days. The residual component of the slope for autonomy costs captures how much each person responds to costs by valuing the partner more. More positive slopes index greater compensation; more negative slopes index less compensation.

We then conducted a path analysis predicting residual changes in satisfaction from the intercept and slope terms of the equations described in the above paragraph. Figure 7 presents the model we estimated within the structural equation modeling program AMOS. Paths a and a′ capture the initial link between people's tendency to value the partner across days (i.e., intercepts) and their own satisfaction. Paths b and b′ capture the initial link between people's tendency to compensate for autonomy costs (i.e., slopes) and their own satisfaction. Paths c and c′ index the link between people's own tendency to value the partner and changes in their own satisfaction over the year. Paths d and d′ index the link between people's tendency to cognitively compensate for autonomy costs by valuing their partner more to their own later satisfaction. Paths e and e′ index stability in satisfaction. All possible correlations among the exogenous variables and the residual correlations between pairs of corresponding men and women's paths were also included in the estimation of the model.[12]

We first fit separate path coefficients for men and women. In most cases, the coefficients for men and women were not significantly different; therefore, we present pooled coefficients. Table 5 contains the standardized path coefficients. We indicate coefficients that differ by gender with subscripts (W for women; M for men). We focus here on the paths predicting changes in satisfaction over the year. As expected, people's own tendency to compensate for autonomy costs during the diary period predicted relative increases in their satisfaction over the first year of marriage. The pooled d and d′ coefficients for the autonomy-valuing slopes were significant and positive. The pooled coefficient for the partner-valuing intercept was significant and positive for women, and marginally significant for men (paths c and c′). The more people valued their partner across days, the greater the relative increases in their satisfaction.

Are Low Self-Esteem People at Risk?—During the initial diary period, high, but not low, self-esteem people compensated for the autonomy costs they experienced by valuing their partner more. The longitudinal benefits of compensation suggest that low self-esteem people's failure to deflect themselves from the costs they experienced might undermine their

[12]Our model posits that compensating for costs has its primary and direct benefits on the satisfaction of the person him/herself. Any effects on the partner's satisfaction should occur largely as a result of the responsive behavior compensating for costs can promote (and such behavior also results from a variety of other motivations, Reis et al., 2004). For this reason, we did not include cross-over paths from one's own intercepts and slopes to the partner's satisfaction. We did estimate a further model that included such cross-over paths. All of the paths predicting the partner's satisfaction were near zero and non-significant.

satisfaction over time. Such a hypothesis implies that the initial hesitations or failures to counter autonomy costs with partner-valuing should in part explain why low self-esteem people might become more dissatisfied in their marriages.

Figure 8 presents the model we estimated to examine this issue. Paths a and a′ through d and d′ capture the initial associations among self-esteem, the average level of partner-valuing across days (i.e., intercepts), and cost-inspired partner-valuing (i.e., intercepts).[13] Paths e and e′ capture the direct association between self-esteem and initial satisfaction. Paths f and f′ and g and g′ capture the direct associations between initial levels of partner-valuing across days and initial levels of cost-inspired valuing and initial satisfaction, respectively. Paths h and h′ capture the direct association between people's initial levels of self-esteem and changes in their satisfaction over the year. Paths i and i′ and j and j′ capture the direct associations between initial levels of partner-valuing across days and initial levels of cost-inspired valuing and changes in satisfaction, respectively. Paths k and k′ capture stability in one's own satisfaction. The correlation between the exogenous variables and the residual correlations between pairs of corresponding men and women's paths were also included in the estimation of the model.[14]

Table 6 contains the standardized path coefficients for the model. Again, we pool coefficients across gender unless corresponding coefficients were significantly different for men and women. We focus here on the paths directly relevant to our mediation hypothesis (Baron & Kenny, 1986). These paths involve the direct path between self-esteem and later satisfaction (paths h and h′) and the indirect paths from self-esteem to cost-inspired partner-valuing (paths c and c′) and from cost-inspired partner-valuing (paths j and j′) to later satisfaction association. People with higher self-esteem were more likely to compensate for autonomy costs by valuing their partner more. The pooled paths c and c′ for the cost-inspired partner-valuing slopes were significant and positive. When people compensated for costs by valuing their partner more, they also reported relatively more satisfaction. The pooled paths for j and j′ were also significant and positive. As expected, the indirect path from self-esteem to cost-inspired valuing and from cost-inspired valuing to changes in satisfaction was also significant, $z = 1.49$, $p < .02$, according to the product test for mediated effects (the MacKinnon, Lockwood, Hoffman, West and Sheets (2002) adaptation of the Sobel (1982) test). Finally, the direct effect of self-esteem revealed that people with low self-esteem became relatively less satisfied over the year. This remaining direct effect suggests that compensating for autonomy costs partially rather than completely mediates the effects of self-esteem on later satisfaction.

Discussion

On days after high self-esteem newlyweds reported more ways in which their partner thwarted their personal goals, they actually reported valuing this vexing and costly partner

[13]We included cross-over paths from the partner's self-esteem to one's own partner-valuing intercepts and one's own costs-to-partner-valuing slopes because past research suggests that people base their evaluations of their partner in their partner's self-views (Murray et al., 1996).

[14]We again estimated a further model that included cross-over paths predicting the partner's satisfaction from the intercept and slope terms and predicting changes in the partner's satisfaction from self-esteem, the intercept, and the slope terms. All of these paths were near zero and non-significant.

more (i.e., the valuing rule).[15] This compensatory response in turn increased people's motivation to be responsive to their partner's needs on a daily basis (i.e., the caring rule). That is, cost-inspired partner-valuing predicted upswings in responsiveness: Costs coupled with compensatory partner-valuing increased responsiveness. Non-coupled costs did not. Put another way, valuing the partner more strongly compelled daily increases in responsive behavior when it was coupled by high autonomy costs than when it was coupled by low autonomy costs. Rather than being a naïve expression of defensiveness, compensating for costs even allowed these newlyweds to preserve relatively higher levels of satisfaction over the stresses of the first year. Indeed, low self-esteem people reported relatively greater distress in part because they failed to counter the costs they encountered by valuing their partner more. Compensating for autonomy costs predicted relative increases in satisfaction even though we controlled for the benefits of seeing the partner positively (i.e., the partner-valuing intercepts). This suggests that the tendency to deflect autonomy costs through compensatory cognition stabilizes relationships.[16]

General Discussion

As Shakespeare intuited, the relationship mind is indeed cunning. It seems to be organized in ways that protect people from the potential threats to well-being and stability imposed by the autonomy costs inherent to relationships. Such interdependence-imposed costs automatically motivate more positive appraisals of the partner. Such compensatory cognitions then compel greater responsiveness to the partner, thereby protecting and stabilizing the relationship bond. Unfortunately, people low in self-esteem – those who are most psychologically vulnerable to relationship loss – correct and override this protective response when the opportunity affords itself, and in so doing, increase their risk of dissatisfaction.

The Architecture of the Relationship Mind

The supposition that the mind should be organized in ways that solve interdependence problems resonates with current perspectives on the nature of consciousness and social cognition (Bargh, 2007; Dennett, 1991; Tomasello, Carpenter, Call, Behne, & Moll, 2005; Tetlock, 2002). Such perspectives assume that consciousness evolved as a mechanism to foster insight into the intentions and goals of another, thereby facilitating coordinated action toward shared social goals (Dunbar & Shultz, 2007; Hare, 2007; Herrmann, Call,

[15]In the diary data, we cannot determine whether costs increase partner-valuing or the absence of costs decreases partner-valuing or both. However, the experiments clearly suggest that the presence of costs increases partner-valuing. In conjunction, these data suggest that costs do indeed increase partner-valuing. The possibility that the absence of costs might also undermine partner-valuing remains a question for future experimental research.

[16]Some readers may wonder why we examined self-esteem as a moderator rather than a seemingly more direct dispositional indicator of one's chronic trust in a partner's responsiveness, such as might be provided by attachment style. We focus on global self-esteem, as indexed by the Rosenberg (1965), because this self-esteem measure captures stable, cross-situational expectations of acceptance (Leary & Baumeister, 2000). Global self-esteem captures negative evaluative associations to the self without requiring people to articulate fears about rejection in relationships. Consequently, it acts as a kind of projective test for capturing the kinds of doubts about one's worthiness that should create interpersonal problems even for people who do not or cannot articulate these problems. Given that our prior research suggest that much of low self-esteem people's motivational conflict may occur outside their awareness (Murray et al., 2008; Murray et al., in press), such sensitivity is critical from our perspective. We did include the Bartholomew and Horowitz (1990) four-paragraph measure of attachment style in the experiments and the Collins and Read (1994) dimensional measure of anxiety and avoidance in the newlywed study. In both the experiments and the diary study, the significant moderating effects of self-esteem emerged controlling for attachment anxiety and avoidance.

Hernandez-Lloreda, Hare & Tomasello, 2007). Functional analyses of the dynamics of attachment (Mikulincer & Shaver, 2003), self-esteem (Leary & Baumeister, 2000), social exchange (Tooby & Cosmides, 1996), risk regulation (Murray et al., 2006), and trust-insurance (Murray et al., in press) similarly assume that regulatory systems developed as generic solutions to problems inherent in negotiating social life.

The present findings raise the possibility that seemingly naïve and idealized romantic perceptions might actually be a functional solution to the adaptive problem posed by autonomy costs. Such costs of interdependence automatically motivate people to attach compensatory value to the partner (i.e., the "valuing" rule). Attaching greater value in turn provides the motivational impetus to be responsive to the partner's needs in costly circumstances (i.e., the "caring" rule). The operation of such default or normative procedural rules thus functions to stabilize a relationship in the face of its inherent structural costs (Kelley, 1979).

The current findings provide strong convergent evidence for the operation of such a system. The experiments first suggest that autonomy costs automatically activate the propensity to attach greater value to the partner regardless of self-esteem. In Experiment 1, people primed with the costs a friend perceived in their relationship were quicker to associate their partner with positive traits. In Experiment 2, people primed with the ways in which their partner thwarted their goals were also quicker to associate their partner with positive traits. High self-esteem people in Experiment 2 were also slower to associate their partner with negative traits when they contemplated how their partner had thwarted their goals.

Affording greater opportunity for conscious control corrected such compensatory sentiments for low, but not high, self-esteem people. Such corrections were evident in both the meta-analyses of the experiments and the daily diary study. In Experiment 1, high self-esteem people compensated for the interdependence costs a friend perceived by attributing greater value to the partner on the explicit measure of positive illusions. In Experiment 2, high self-esteem people even expressed stronger illusions when they contemplated the myriad of ways in which their relationship required them to sacrifice their autonomy. In contrast, the consciously expressed sentiments of low self-esteem people corrected and actually overturned the automatic response. In Experiment 1, low self-esteem people responded to the concerns their friend expressed with weakened illusions. In Experiment 2, they similarly reacted to the loss of their autonomy by reporting less optimistic perceptions on the explicit measures. In both experiments, priming the autonomy costs of interdependence significantly increased the discrepancy between the implicit and explicit sentiments of low, but not high, self-esteem people.

The newlywed data generally replicate the experiments and illustrate the power of this system in regulating daily behavior. For high self-esteem newlyweds, one day's vexing experiences with lost autonomy – as captured by the partner's interference with one's goals – actually compelled more positive evaluations of the partner on subsequent days. No such effect emerged for low self-esteem newlyweds. This compensatory response was specific to autonomy costs and not to other negative rejecting behavior, and it emerged even though the

partner was no more apologetic, well-behaved or accommodating of people's goals on subsequent days.

The convergence in the implicit and explicit sentiments of high self-esteem people illustrates the motivating power of the need for a clear or resolute state of mind (Brickman, 1987; Festinger, 1957; Steele, 1988). High self-esteem people readily deflected themselves from the costs that could provoke doubts by emboldening their relationship sentiments. They seemed to enlist their psychological defenses, corralling both implicit and explicit evaluations of the partner into a resolute reminder of the partner's value. The present findings thus suggest that basic pressures to reduce dissonance and restore a sense of meaning in one's commitment may stabilize the relationship evaluations of people with a resilient or secure sense of self.

By contrast, low self-esteem people seemed unable to consolidate their sentiments in the face of the threat autonomy costs pose to their commitment. Indeed, their explicit sentiments seemed to reverse their implicit ones. We believe that low self-esteem people correct automatic compensatory responses when the opportunity presents itself because they are motivated to protect themselves against the risk of becoming too psychologically attached to their partner (Murray et al., 2006). When automatic compensations creep into consciousness, dampening such sentiments may be their best available means of minimizing the potential pain of rejection. Thus, for people low in self-esteem, the greater psychological preoccupation may be in minimizing the dissonance that could result from feeling committed to a partner they could lose. Consistent with this logic, low self-esteem people consciously correct for automatic desires to seek connection to their partner in the face of interdependence risk. For instance, implicitly priming the goal of seeking connection strengthens positive implicit attitudes toward the partner – but simultaneously motivates low self-esteem people to defensively distance themselves from the partner on explicit measures of closeness (Murray, Derrick et al., 2008, Experiment 4).

The newlywed data further suggest that compensating for autonomy costs is functional in both the short and long-term. On a daily basis, compensating for autonomy costs heightened people's objective willingness to be responsive to their partner's needs. That is, people actually treated their partner most responsively on a daily basis when they mentally-countered strong autonomy costs with increased valuing of the partner. Over the year, people who compensated more for autonomy costs also reported relative increases in satisfaction. Indeed, low self-esteem people grew relatively less satisfied over the year in part because they failed to compensate for the autonomy costs they experienced during a two-week period early in their marriage.

Apart from demonstrating both the existence and the functionality of the commitment insurance system, the current findings also delimit its function. Consistent with our notion that solving interdependence problems requires specific regulatory systems (Murray et al., 2006), the present results suggest that this system functions specifically to manage relationship-sentiment in response to experienced autonomy costs. It does not seem to function simply to deflect negativity or regulate self-evaluations. In the diary study, high self-esteem people compensated for autonomy costs specifically; they did not compensate

for more intentionally rejecting and hurtful partner behaviors. Similarly, in Experiment 1, priming the costs a friend perceived in most relationships did not trigger either automatic or controlled relationship compensation. The implicit and explicit evaluations of participants in the normative costs condition did not differ significantly from controls. None of the main or moderated contrasts comparing the normative costs and control conditions were significant. Similarly, priming the general thwarting of one's goals did not trigger either automatic or controlled relationship compensation. The implicit and explicit evaluations of participants in the thwarted outcomes condition did not differ significantly from controls. None of the main or moderated contrasts comparing the thwarted outcomes and control conditions were significant. Also the manipulations did not consistently affect self-evaluations (i.e., mood). Further analyses that controlled for mood also revealed parallel results.

The current findings are impressive in several respects. We found convergent support for the operation of the commitment-insurance system in the real lives of newlywed couples and in controlled laboratory experiments. We found parallel and predicted effects utilizing two different manipulations of autonomy costs. We also demonstrated self-esteem moderated divergences between implicit and explicit relationship sentiments within the same experiment. And finally, we demonstrated that compensating for autonomy costs both increases responsiveness in the short-term and predicts increases in satisfaction over the longer-term. Moreover, low self-esteem people suffered relative declines in satisfaction over the year in part because they did not or could not compensate for the costs they perceived. Such findings are dramatic for two reasons. First, some self-esteem theorists contend that self-esteem has little practical consequence for interpersonal functioning (Baumeister, Campbell, Krueger & Vohs, 2003). These findings stand in sharp contrast to such a claim. Second, the contingent tendency to link behavior to redeeming thoughts (i.e., slopes), not just the thoughts alone (i.e., intercepts), helps explain why low self-esteem people are more vulnerable. To our knowledge, this is the first such demonstration.

The present findings underscore the paradoxical ambivalence that characterizes low self-esteem people in relationships (Murray et al., 2006). Like highs, low self-esteem people possess basic needs for connection (Leary & Baumeister, 2000). Like highs, their automatic or "unconscious relationship-mind" seems tuned to meeting these needs. They automatically activate the goal of seeking connection to the partner when the external world signals interpersonal risk (Murray, Derrick et al., 2008, Experiment 1). They also automatically activated compensatory relationship sentiments when the autonomy costs of interdependence were salient in the present studies. However, the deliberative or "conscious relationship-mind" of low self-esteem people re-tunes itself to meet self-protection goals. When the opportunity affords itself, low self-esteem people take a step back – deliberately creating a sense of psychological distance that minimizes the potential pain of rejection in advance (Murray et al., 2006). They consciously eschew their sense of attachment to their partner when their need for it is most acute (Murray, Derrick et al., 2008). And they correct and reverse their positive implicit sentiments toward their partner when the personal costs of interdependence make them most in need of a sense of certainty in their commitment. We believe that self-esteem has such effects because it functions as a powerful dispositional proxy for chronic trust in the partner's love and commitment. By functioning as a barometer of risk, trust limits commitment to levels that feel psychologically safe (Murray et al., 2006).

That is, people generally only allow themselves to feel committed when they trust in their partner's love and commitment (Murray et al., 2000). For people who are less trusting, such as those low in self-esteem, the conscious relationship mind thus reigns in the unconscious relationship mind as a mechanism for risk-management.

Implementing Commitment: Deflecting Attention from the Costs of Interdependence

People are drawn into the decision to commit to a partner by the allure of the partner's many positive qualities (Holmes & Rempel, 1989; Murray, 1999), the experience of rewarding interactions (Kelley, 1979), and opportunities for expanding the self that love creates (Aron, Norman, Aron, McKenna, & Heyman, 2000). Sooner rather than later, people learn that love and commitment also restrict the self. The interdependent structure of relationships guarantees the experience of autonomy costs (Kelley et al., 2003). As part of a twosome, Harry can no longer do what he wants to do when he wants to do it. His goals are no longer his alone.

Such threats to basic needs for autonomy (Ryan & Deci, 2000) can and sometimes do destabilize relationships. Prioritizing one's autonomous needs interferes with the cognitive and behavioral transformations that are critical for sustaining commitment, such as forgiving a partner's transgression, responding to his/her needs for support, and acceding to his/her wishes during conflicts (Rusbult & Van Lange, 2003). By linking interdependence costs to the automatic creation of value in the partner, the commitment-insurance system minimizes such threats. It functions as a deflection-avoidance system – one that keeps people immersed in the task of implementing their commitment from being distracted by the costs that might undermine it. Consistent with this logic, planning how to implement a desired goal creates a general motivational state that selectively focuses attention on information that supports one's decisions, tuning the mind to reach desired goals (Henderson, Liver & Gollwitzer, 2008).

Certain aspects of how the commitment-insurance system operates require refinement. Future research might specify the time-course for the compensatory-valuing effect. The experiments suggest that the effects may be immediate; the diary study suggests that they may also extend over time. Perhaps the automaticity and time-course of compensation depends on the level of autonomy threat. When one senses minor infractions upon one's goals, defense might be relatively automatic and quick. However, when more major goals are impinged, the initial frustration over the event may need to lessen before compensatory tendencies ensue to stabilize one's commitment. Future research might pinpoint the specific level of autonomy costs that might exceed one's capacity to compensate, and thus, compel the motivation to correct. It might also specify the circumstances under which compensating for costs might be detrimental (as could be the case if people rationalize for infringements on their freedom that are imposed punitively by the partner rather than the circumstance of interdependence itself).

Subsequent research might also examine whether correction can become automatic for people who distrust their partner's commitment, such as those low in self-esteem. Existing research suggests that such corrections will indeed become effortless with time. For instance, low self-esteem people automatically activate self-protection goals when they

remember a partner transgression they had actually forgiven (Murray et al., 2008, Experiment 7). Further research might also examine other relationship factors that might prompt correction and even inhibit the activation of the compensation contingency. The model assumes that the motivation to compensate for communal costs is likely to be strongest for people defending an unequivocal orientation toward their relationship. Consequently, compensation might require a certain level of commitment to be triggered in the first place (Gagne & Lydon, 2003). Research might specify how the activation and suppression of the costs-to-partner-valuing contingency shifts as people move psychologically between deliberating and implementing the decision to commit.

Longitudinal research might also further examine the relationship consequences of automatic compensation and correction. Our findings suggest that relationships populated by low self-esteem people are more vulnerable over time precisely because they tend to correct relationship-protective, but psychologically risky, perceptions. Future research might examine the cognitive mechanisms that create more positive implicit attitudes and how such valuing-mechanisms might lessen people's sensitivity to perceiving costs to their autonomy. Such mechanisms might involve the suppression of faults, the exaggeration of virtues, or the spontaneous creation of compensatory links between attributes (Murray & Holmes, 1999). Finally, subsequent research might examine whether these dynamics extend to other relationships, such as those involving friends or parents and their children.

Conclusion

In gaining a romantic partner, people lose an autonomous self. The commitment-insurance system operates to solve the fundamental adaptive problem this basic requirement of interdependence creates. By linking interdependence costs to the compensatory creation of value, this system allows Harry to remain resolute in his commitment to Sally when she thwarts his goals, disrupts his daydreams, chides his wandering eye, and occasionally interferes with his peaceful pursuit of inactivity. In so doing, this system creates the reason to be responsive to Sally's needs even when it is costly to Harry, thus strengthening and stabilizing the relationship.

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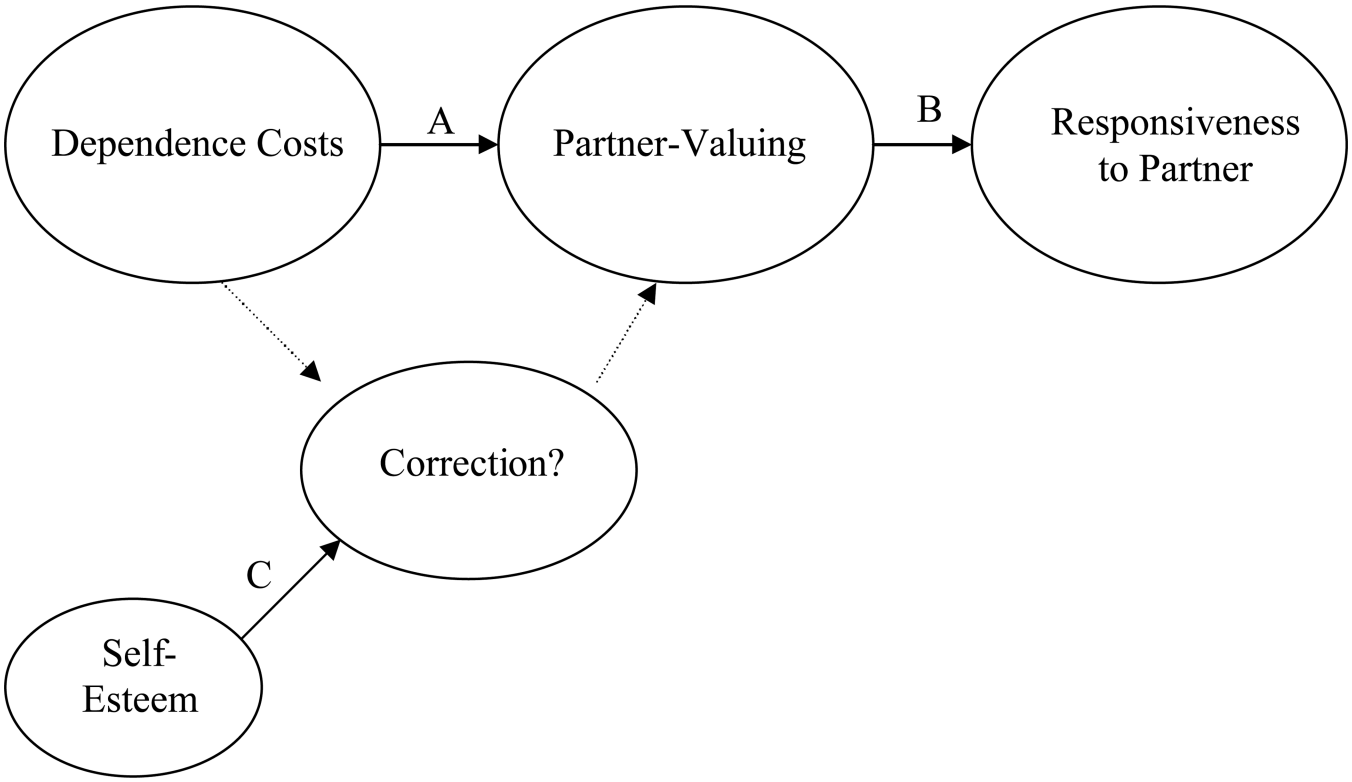

Figure 1.
The Conviction-Maintenance System

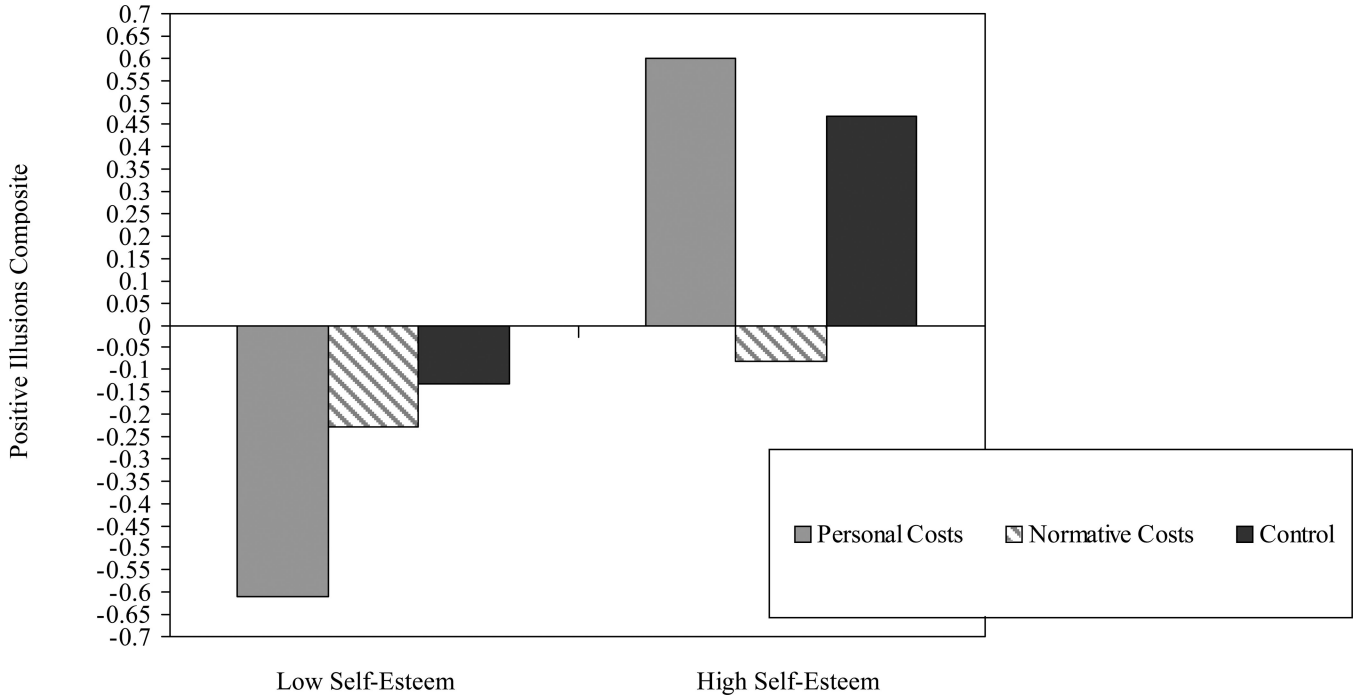

Figure 2.

Positive Illusions as a Function of Global Self-Esteem and Experimental Condition in Experiment 1.

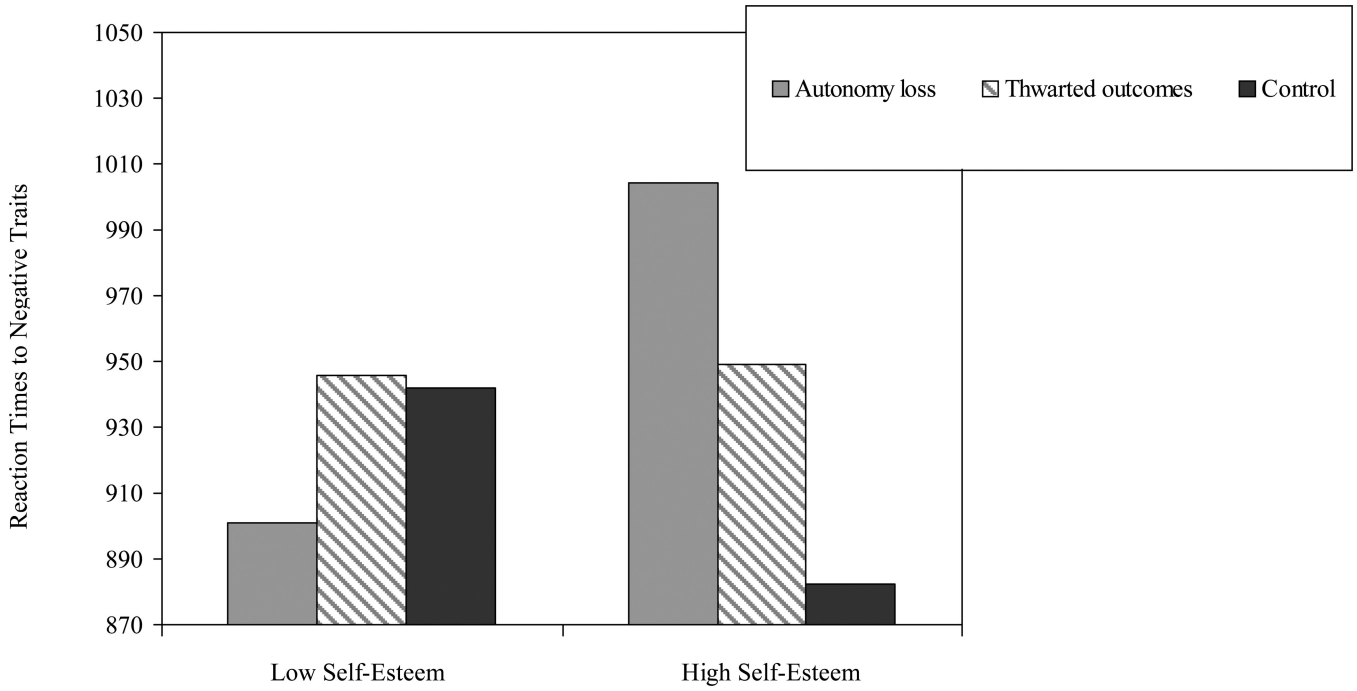

Figure 3.
Reaction times to Negative Traits as a Function of Global Self-Esteem and Experimental Condition in Experiment 2.

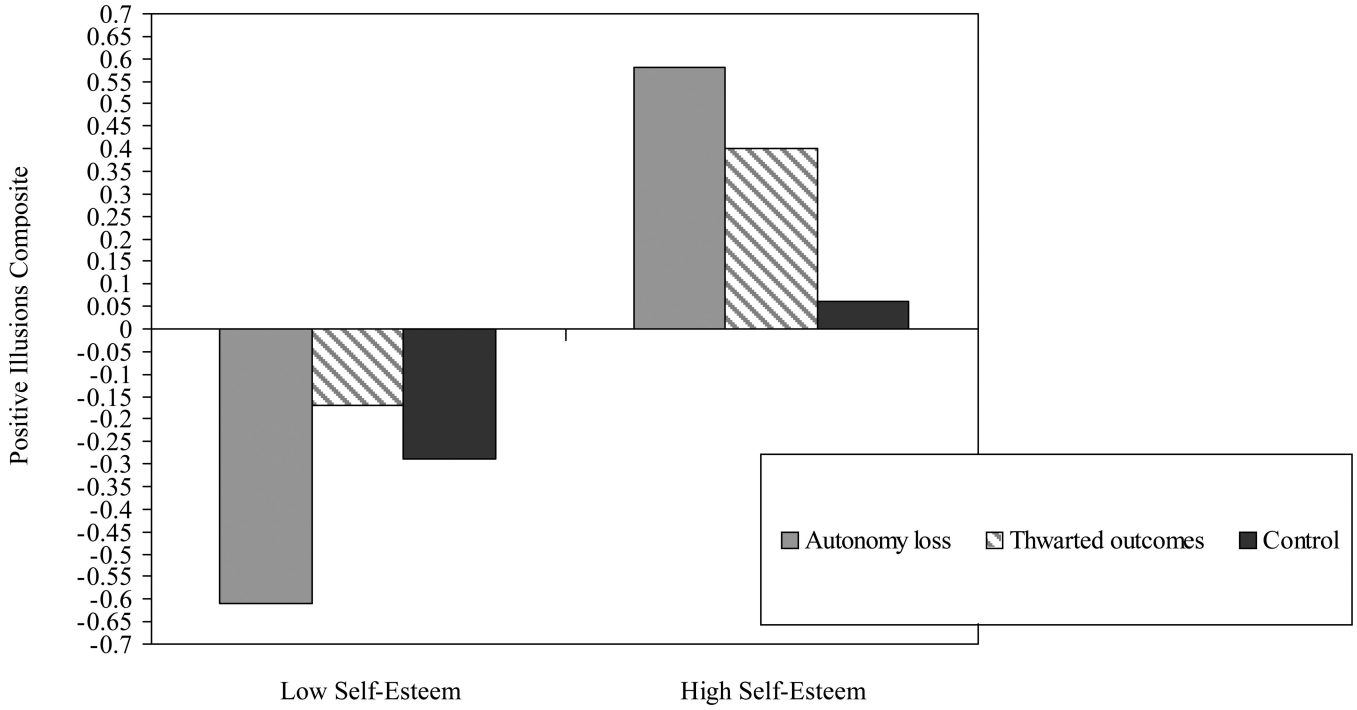

Figure 4.

Positive Illusions as a Function of Global Self-Esteem and Experimental Condition in Experiment 2.

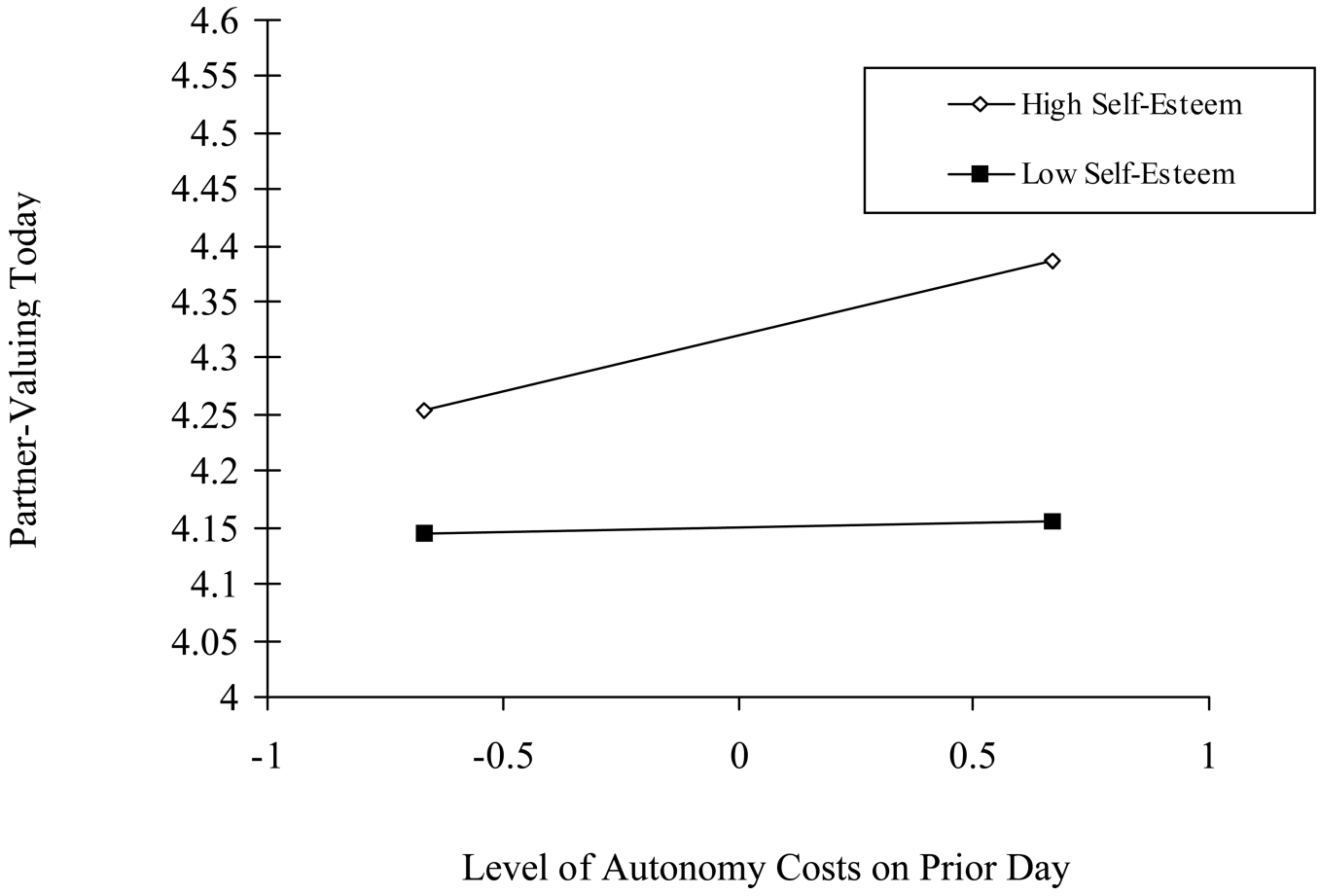

Figure 5.
How autonomy costs predict changes in partner-valuing as a function of self-esteem.

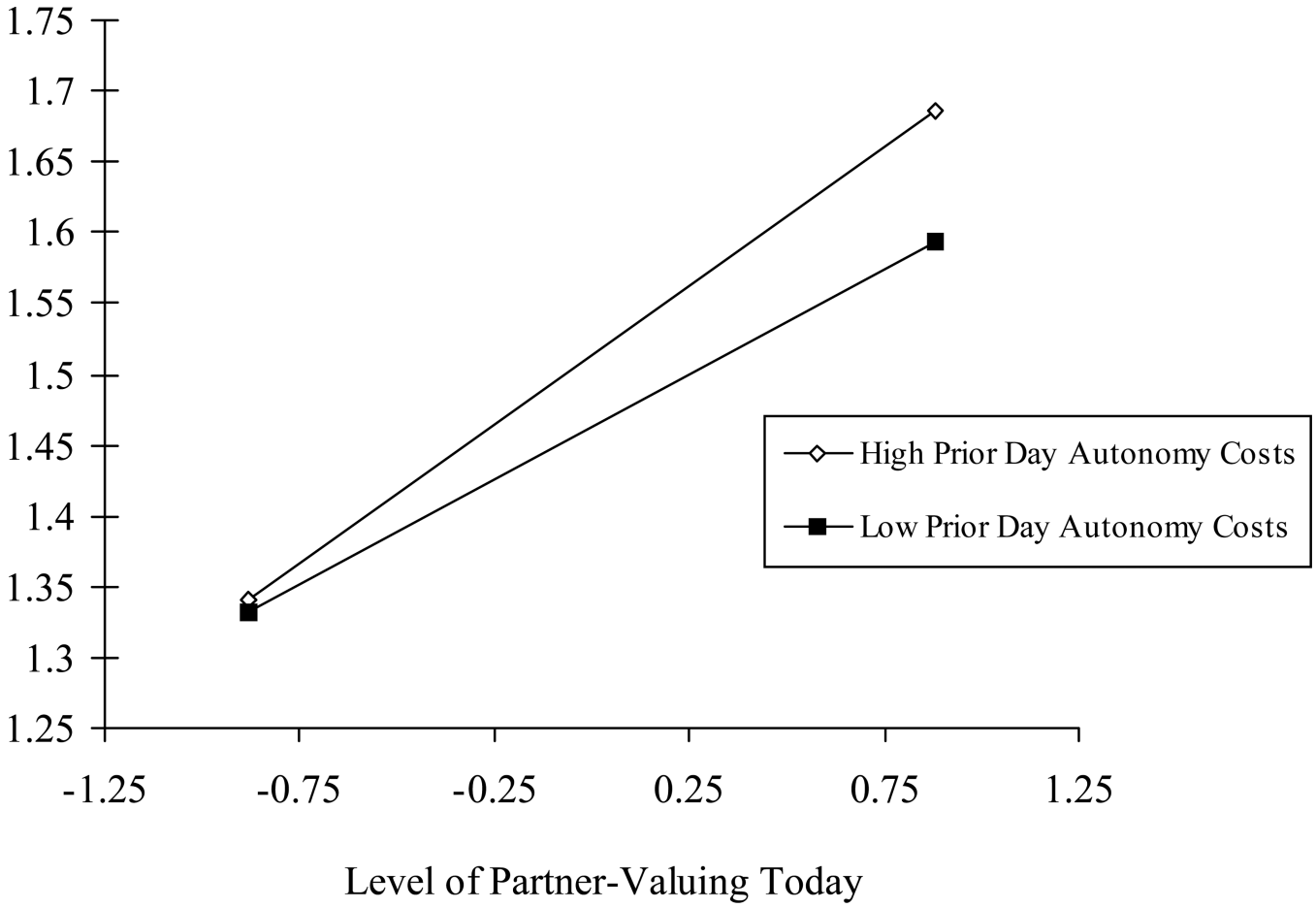

Figure 6.
How compensating for autonomy-costs predicts responsive behavior.

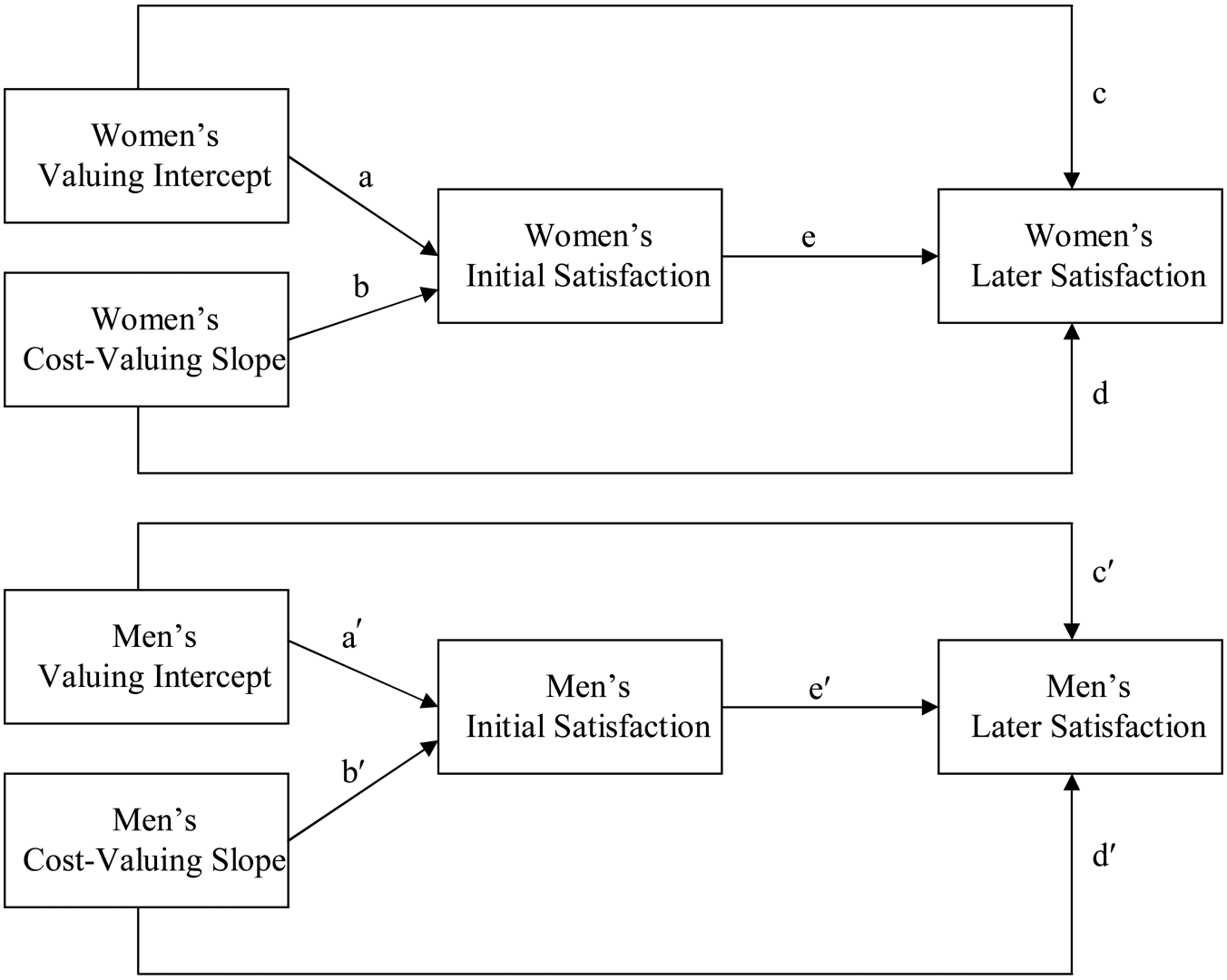

Figure 7.
Predicting changes in satisfaction from the partner-valuing intercept and autonomy-costs-to-partner-valuing slopes.

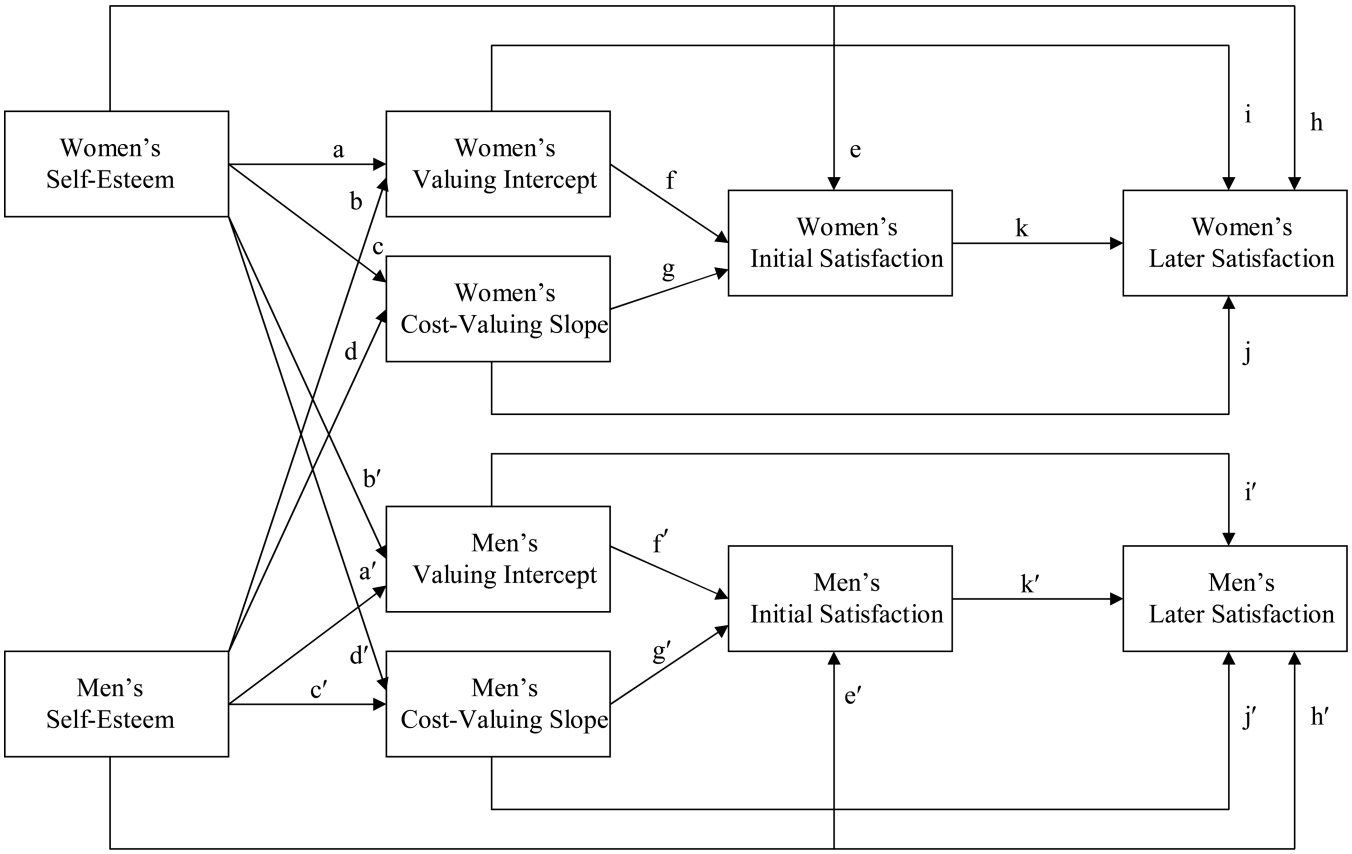

Figure 8.
Predicting changes in satisfaction from the partner-valuing intercept and autonomy-costs-to-partner-valuing slopes.

Table 1

Summary of regression analyses for Experiment 1.

	Positive Implicit Evaluations [a]			Negative Implicit Evaluations [b]			Positive Illusions [c]			Mood [c]		
Predictor	β	*t*	sr^2	β	*t*	sr^2	β	*t*	sr^2	β	*t*	sr^2
Object words	.13	1.67^{+}	.01	.36	3.82^{**}	.09	--	--	--	--	--	--
Mood words	.72	9.65^{**}	.43	.50	5.28^{**}	.17	--	--	--	--	--	--
Self-esteem	.08	1.20	.01	.04	< 1	.00	.38	3.71^{**}	.14	.47	4.89^{**}	.22
Personal costs vs. normative costs & control	−.14	-2.02^{*}	.02	.09	1.11	.01	.01	< 1	.00	−.06	< 1	.01
Normative costs vs. control	.02	<1	.00	−.08	−1.06	.01	−.17	-1.71^{+}	.03	.00	< 1	.00
Esteem by personal costs vs. normative costs & control	−.00	< 1	.00	−.01	< 1	.00	.21	2.05^{*}	.04	−.00	< 1	.00
Esteem by normative costs vs. control	.03	< 1	.00	.09	1.09	.01	−.11	−1.00	.01	−.16	−1.54	.02

$^{+}p < .10$,

$^{*}p < .05$,

$^{**}p < .01$.

[a] The degrees of freedom for the error term: first step (86), second step (83), third step (81).

[b] The degrees of freedom for the error term: first step (69), second step (66), third step (64).

[c] The degrees of freedom for the error term: first step (85), second step (83).

Table 2

Summary of regression analyses for Experiment 2.

	Positive Implicit Evaluations [a]			Negative Implicit Evaluations [b]			Positive Illusions [c]			Mood [c]			Autonomy Sacrifices [c]		
Predictor	**β**	***t***	***sr*²**	**β**	***t***	***sr*²**	**β**	***t***	***sr*²**	**β**	***t***	***sr*²**	**β**	***t***	***sr*²**
Object words	.31	4.91**	.07	.20	3.04**	.03	--	--	--	--	--	--	--	--	--
Mood words	.61	9.76**	.28	.69	10.55**	.40	--	--	--	--	--	--	--	--	--
Self-esteem	−.04	< 1	.00	.10	1.58	.01	.43	5.19**	.19	.47	5.71**	.22	−.15	−1.67+	.02
Autonomy loss vs. thwarted & control	−.11	−2.01*	.01	.03	< 1	.00	−.01	< 1	.00	.03	< 1	.00	.26	2.94**	.07
Thwarted vs. control	.01	< 1	.00	.06	< 1	.00	.10	1.19	.01	−.06	< 1	.00	.02	< 1	.00
Esteem by autonomy loss vs. thwarted & control	.05	< 1	.00	.14	2.26*	.02	.21	2.43*	.04	.07	< 1	.00	−.06	< 1	.00
Esteem by thwarted vs. control	.06	1.06	.00	.04	< 1	.00	.04	< 1	.00	.00	< 1	.00	.08	< 1	.01

+ p < .10,

* p < .05,

** p < .01.

[a] The degrees of freedom for the error term: first step (116), second step (113), third step (111).

[b] The degrees of freedom for the error term: first step (104), second step (101), third step (99).

[c] The degrees of freedom for the error term: first step (115), second step (113).

Table 3

Predicting today's partner valuing from yesterday's autonomy costs.

	b (standard error)				
Today's Dependent Variable	**Intercept**	**Prior day's valuing**	**Prior day's autonomy costs**	**Global self-esteem**	**Global self-esteem by prior day's autonomy costs**
Partner valuing	4.235	.086 (.015)**	.054 (.023)*	.103 (.036)**	.054 (.026)*

* $p < .05$,

** $p < .01$.

Table 4

Predicting today's perceptions of responsiveness from yesterday's valuing by partner.

Today's Dependent Variable	b (standard error)					
	Intercept	Prior day's behavior	Prior day's valuing by partner	Today's valuing by partner	Prior day's autonomy costs for partner	Today's valuing X prior day's autonomy costs
Perceived responsive behavior	1.488	.008 (.014)	.021 (.020)	.192 (.019)**	.037 (.031)	.065 (.032)*

* $p < .05$,

** $p < .01$.

Table 5

Predicting changes in satisfaction from the partner-valuing intercept and the autonomy-costs to partner-valuing slope.

	Standardized β	z
Predicting Current Satisfaction		
a & a': Own intercept; partner-valuing	.33	6.41^{**}
b & b': Own slope; costs-to-valuing	.08	1.47
Predicting Changes in Satisfaction		
c & c': Own intercept; partner-valuing [a]	$.19_{W}$	3.35_{W}^{**}
	$.09_{M}$	1.63
d & d': Own slope; costs-to-valuing	.13	2.36^{*}
e & e': Own initial satisfaction	.44	10.41^{**}

* $p < .05$,

** $p < .01$. See Figure 7 for paths.

CFI = 1.00, $\chi^2(14, N = 178) = 6.97$ ns.

[a] For c vs. c': $\chi^2(1, N = 178) = 4.6$, $p < .05$.

Table 6

Predicting changes in satisfaction from self-esteem, the partner-valuing intercept and the autonomy-costs to partner-valuing slope.

	Standardized β	z
Predicting Partner-Valuing Intercepts		
a & a': Own self-esteem	.14	3.12*
b & b': Partner self-esteem	−.04	−0.89
Predicting Costs-Valuing Slopes		
c & c': Own self-esteem	.10	2.20*
d & d': Partner self-esteem	.10	2.23*
Predicting Current Satisfaction		
e & e': Own self-esteem	.18	3.60**
f & f': Own intercepts; partner-valuing [a]	.31	5.99**
g & g': Own slopes; costs-to-valuing	.06	1.20
Predicting Changes in Satisfaction		
h & h': Own self-esteem	.10	2.50*
i & i': Own intercepts; partner-valuing [a]	$.17_W$	3.09_W**
	$.08_M$	1.46_M
j & j': Own slopes; costs-to-valuing	.12	2.22**
k & k': Stability in satisfaction	.42	10.11**

*$p < .05$,

**$p < .01$. See Figure 8 for paths.

CFI = 1.00, $\chi^2(24, N = 178) = 13.8$ ns.

[a] For i vs. i': $\chi^2(1, N = 178) = 4.4$, $p < .05$.