

Do People Realize How Their Partners Make Them Feel? Relationship Enhancement Motives and Stress Determine the Link Between Implicitly Assessed Partner Attitudes and Relationship Satisfaction

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Do people realize the evaluative feelings that are spontaneously activated by their partner? If so, do they use those evaluations when judging their romantic relationships? To answer these questions, we investigated the association between automatic partner attitudes and judgments of relationship satisfaction in 7 studies. Study 1 was a meta-analysis of 86 correlations that revealed a very weak association between implicitly and explicitly assessed relationship evaluations, and Studies 2a–2c revealed that people failed to accurately report their automatic partner attitudes even when specifically asked to do so. Consistent with the idea that such inaccuracy emerged in part because motivational factors led people to override their automatic attitudes, Studies 3 and 4 demonstrated that automatic partner attitudes better aligned with relationship judgments when people were incentivized with money (Study 3) and had dissolved their relationship (Study 4). Nevertheless, consistent with the idea that overriding automatic attitudes requires the opportunity to deliberate, Studies 4 and 5 demonstrated that automatic partner attitudes better aligned with relationship judgments when people experienced more stress at the daily level (Study 4) and yearly for two years (Study 5). In Study 5, the interaction between stress and automatic attitudes emerged controlling indicators of negativity and was further moderated by relationship enhancing motivations among wives. These studies (a) help explain why automatic partner attitudes predict self-reported relationship satisfaction over time and (b) provide support for theories of social cognition suggesting that people have access to implicitly assessed attitudes that is obscured by motivations and opportunities to deliberate.

Keywords: automatic attitudes, dual-process, MODE model, relationship satisfaction, stress

Supplemental materials: <http://dx.doi.org/10.1037/pspi0000247.supp>

Do people know how they feel about their romantic partners? And if so, do they use those feelings when deliberately judging how satisfied they are in their romantic relationship? On the one hand, the answers to these questions may seem obvious: How could people *not* know how they feel about their partners, and what information could be more important to use when evaluating their

relationships? To some extent, theoretical perspectives and empirical observations support these intuitions. According to interdependence theory (Kelley & Thibaut, 1978), the predominant theory of relationship evaluation, people evaluate the quality of their relationships by considering their rewarding and costly experiences with their partners (see also Kelley et al., 1983). According

Editor's Note. Grainne Fitzsimons served as Guest Editor.—KK

This article was published Online First July 27, 2020.

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Preparation for this article was supported by National Science Foundation Grant BCS-1251520 to James K. McNulty and a joint Open Research Area (ORA) grant allocated to Francesca Righetti and Wilhelm Hofmann, Netherlands Organization for Scientific Research (NWO) Grant 464-15-093 and German Research Foundation (DFG) Grant HO 4175/6-1, respectively.

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to theoretical perspectives and research on social cognition, rewarding and costly experiences with a target (e.g., a partner) are captured as evaluative feelings that are automatically activated in subsequent encounters with that target (De Houwer, 2009; Fazio, 2007; Fazio, Sanbonmatsu, Powell, & Kardes, 1986; Ferguson & Zayas, 2009) and guide evaluative judgments of that target (Fazio & Olson, 2014; Gawronski & Bodenhausen, 2006). Given evidence that automatically activated attitudes toward a romantic partner indeed reflect the extent of people's experiences with that partner (Hicks, McNulty, Meltzer, & Olson, 2016, 2018; Murray, Holmes, & Pinkus, 2010; for review, see Hicks & McNulty, 2019), the evaluative feelings spontaneously activated by one's partner should be a critical source of information that people use when deliberately evaluating their relationships.

On the other hand, however, people seem to lack insight into the nature of numerous critical judgment-and-decision-making processes (Bargh & Morsella, 2008; Dijksterhuis & Nordgren, 2006; Morris, Öhman, & Dolan, 1998; Nisbett & Wilson, 1977; Schacter, 1992; Wilson, 2004), particularly when they are motivated to draw certain conclusions (see Ditto & Lopez, 1992; Gawronski & Strack, 2004; Kunda, 1990). Evidence from relationship science suggests that people's relationship evaluations are no exception. Although there are clearly times when people are motivated to view their relationships accurately (see Gagné & Lydon, 2004), people in long-term relationships are frequently strongly motivated to believe that their partners are a source of positive feelings and not a source of negative feelings (see Murray, 1999); yet, close relationship partners frequently behave in ways that are experienced as unpleasant (for reviews, see Heyman, 2001; Overall & McNulty, 2017), and recent work on relationship evaluation demonstrates that partners spontaneously activate both positive and negative evaluative feelings (McNulty, Olson, & Joiner, 2019; Zayas & Shoda, 2015; Zayas, Surenkok, & Pandey, 2017). Thus, it is not surprising that a robust body of research indicates that people engage in numerous cognitive processes that bias their more deliberative subjective judgments toward their more positive feelings and away from their more negative feelings (for reviews, see Fletcher & Kerr, 2010; Gagné & Lydon, 2004; Karney, McNulty, & Bradbury, 2001; Murray, 1999).

Critically, however, people do not appear to maintain these biased evaluations indefinitely. In fact, one of the most robust findings in relationship science is that relationship satisfaction steadily declines over time (see Glenn, 1998; Meltzer, McNulty, Jackson, & Karney, 2014; VanLaningham, Johnson, & Amato, 2001). Yet, a growing body of research suggests such declines do not appear to be preceded by, or even accompanied by, any increases in negativity (Farnish & Neff, 2018; Huston, Caughlin, Houts, Smith, & George, 2001; Lavner & Bradbury, 2010; Lavner, Karney, & Bradbury, 2014, 2016; Markman, Rhoades, Stanley, Ragan, & Whitton, 2010; Mattson, Frame, & Johnson, 2011; Williamson, Altman, Hsueh, & Bradbury, 2016). Instead, as Lavner et al. (2014, pp. 5–6) recently concluded, “the key shift underlying declining satisfaction is not an increase in relationship problems, but a growing intolerance for problems that have existed from the beginning.” Not only does this conclusion justify questions about whether people have accurate insights into their evaluative interpersonal feelings at any given point in time, it raises questions about the process by which people inevitably come to realize and report those feelings over time.

In the current research, we investigate these issues by considering whether people know the valence of feelings that are spontaneously activated by their partners, conceptualized as automatic partner attitudes, and whether they use those attitudes when making explicit judgments about their relationship satisfaction. In pursuit of this goal, the remainder of this introduction is divided into four sections. In the first section, we review competing perspectives on social cognition and the predictions that each makes regarding people's access to and use of implicitly assessed automatic attitudes in evaluative judgments. In the second section, we review evidence relevant to this issue, which suggests people *can* access implicitly assessed attitudes, though various factors related to their motivation to draw particular conclusions and their opportunities to deliberate likely obscure whether they use that information in their evaluative judgments at any particular point in time. In the third section, we discuss motivation and opportunity factors in the context of relationship evaluations in particular. Finally, in the fourth section, we provide an overview of a meta-analysis and six studies we conducted to examine the link between people's automatic attitudes and their deliberative relationship judgments.

Competing Perspectives Regarding Awareness of Automatic Attitudes

Questions regarding whether people have access to the feelings that are spontaneously activated by their partners and whether they use those feelings when deliberately evaluating their relationship parallel an ongoing debate in the field of social cognition. As noted, such evaluative associations are conceptualized as attitudes (De Houwer, 2009; Fazio, 2007; Ferguson & Zayas, 2009), and strong attitudes are capable of automatic (i.e., unintentional, effortless, and efficient) activation upon perception of the object (Fazio, 2007; Fazio et al., 1986). Given their associative nature, these attitudes are frequently captured implicitly through performance-based measures, such as the implicit-association test (IAT; Greenwald, McGhee, & Schwartz, 1998) or evaluative priming procedures (Fazio, Jackson, Dunton, & Williams, 1995; Payne, Cheng, Govorun, & Stewart, 2005). The attitude that one endorses after careful thought or deliberation, in contrast, can be conceptualized as a deliberative evaluative judgment (otherwise referred to as an explicit attitude or propositional judgment). Given that these deliberative judgments are typically measured through self-report, they can be considered verbal forms of behavior (see Olson & Fazio, 2008).

Although various perspectives agree that there is good reason to expect the evaluative associations captured by implicit measures will sometimes differ from the evaluative judgments captured by self-report (Fazio et al., 1995; Gawronski & Bodenhausen, 2006; Greenwald & Banaji, 1995; Strack & Deutsch, 2004; Wilson, Lindsey, & Schooler, 2000; for reviews see, Fazio & Olson, 2003; Gawronski, Deutsch, & Banse, 2011), these perspectives differ regarding whether people have conscious access to implicitly assessed evaluative associations and use them when forming their evaluative judgments. A popular perspective on this issue is that implicitly and explicitly assessed attitudes are outputs from different processing “systems” that serve different functions (Dovidio & Gaertner, 1986; Greenwald & Banaji, 1995; McConnell & Rydell, 2014; Strack & Deutsch, 2004; Wilson et al., 2000), and several perspectives have gone as far as to specifically state that implicitly

assessed attitudes are unconscious (Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; Greenwald & Banaji, 1995; Wilson et al., 2000). For example, in what is arguably the most influential article in this area, Greenwald and Banaji (1995) introduced the concept of implicit attitudes by arguing that they are “introspectively unidentified (or inaccurately identified)” (p. 8). Likewise, Dovidio et al. (1997) argued that “self-reported attitudes and response latency measures of attitudes may both be valid measures of attitudes (one conscious, the other unconscious) that predict different types of behaviors” (p. 518). Finally, in describing their dual attitude model, Wilson et al. (2000), argue that “Because people do not have access to . . . implicit states, they develop explicit attitudes, motives, and schemas that exist independently of the nonconscious, implicit ones” (p. 119). In light of these statements, it is not surprising that in their review of this issue, Gawronski, Hofmann, and Wilbur (2006) characterize existing sentiment in this way: “A widespread assumption underlying the application of indirect measures is that they provide access to unconscious mental associations” (p. 486).

However, an alternative perspective is that people cannot only access their implicitly assessed attitudes but actually use such attitudes as the default source of their explicit evaluative judgments (Fazio & Olson, 2014; Gawronski & Bodenhausen, 2006; Olson & Fazio, 2008). According to one version of this perspective (see Olson & Fazio, 2008), the words “implicit” and “explicit” refer not to different *types* of attitudes but to different ways to *measure* an attitude. Indeed, this perspective suggests that implicit assessments are merely a useful tool for capturing spontaneously activated attitudes because they minimize the role of downstream processes that may interfere with the ability of alternative measures, such as self-reports, to capture such attitudes (see Fazio et al., 1995). These ideas can be traced to Fazio’s (1990) influential *motivation and opportunity as determinants* (MODE) model, which was developed to explain the sometimes weak correspondence between attitudes and behavior observed in the late 1960s (e.g., Wicker, 1969). The MODE model posits that the attitude activated immediately upon encountering the attitude object is the starting place for any behavior, but that weak associations between attitudes and behavior sometimes emerge because deliberative, controlled processing can allow people to behave in ways that deviate from their automatic attitudes when they are sufficiently motivated and able to override their spontaneous responses. With respect to the present purposes, the same processes that unfold in the link between automatic attitudes and behavior also unfold in the link between automatic attitudes and explicit, self-reported attitudes; after all, as noted earlier, self-reported attitudes are merely behaviors (in this case, questionnaire responses) that are typically exhibited after deliberation (see Olson & Fazio, 2008). Thus, the MODE model suggests that people’s self-reports of their attitudes should resemble their implicitly assessed attitudes when they lack sufficient motivation or opportunity (e.g., time, cognitive capacity) to report sentiments that differ from their automatic responses, but that people’s self-reports may differ from their implicitly assessed attitudes when they are sufficiently motivated and able to respond otherwise. In their recent review of MODE-relevant issues and research, Fazio and Olson (2014) summarized this perspective this way:

We observe that not long ago, implicit and explicit measures weren’t so far apart. Indeed, early forays into implicit measurement revealed remarkable correspondence with explicit reports (Fazio & Olson, 2003). Likely this was because the measures assessed attitudes about which there was little motivation to interfere with accurate explicit reporting (e.g., flowers vs. insects; Greenwald et al., 1998; cockroaches vs. puppies; Fazio et al., 1986). Here, clear implicit-explicit correspondence was the rule. The original impetus for the priming measure was to assess an attitudinal strength variable (i.e., attitude accessibility), not to uncover some different attitudinal representation altogether (e.g., Wilson et al., 2000). Researchers have been tempted to identify separate automatic/unconscious and controlled/conscious attitudes in domains where reliable implicit-explicit dissociations have been observed (e.g., self-esteem; Spalding & Hardin, 1999), but here too the two measurement types correlate under conditions specified by the model (e.g., Olson, Fazio, & Hermann, 2007; see also Lebel, 2010).

This perspective resonates quite well with another, more contemporary model that speaks more directly to the association between implicitly and explicitly assessed processes—Gawronski and Bodenhausen’s (2006, 2011) associative-propositional evaluation (APE) model. Like the MODE model, the APE model distinguishes between implicitly and explicitly assessed constructs as different *processes* (vs. systems; see Wilson et al., 2000)—one process consisting of automatically activated evaluative associations captured by implicit assessment, which we argue can be conceptualized as automatic attitudes toward the source of the activation, such as a partner, and the other consisting of propositional reasoning processes, such as evaluative judgments of the partner and relationship that people endorse as a subjective truth after deliberation. With respect to the current issues, the APE model, like the MODE model, suggests associative evaluations can inform propositional evaluations, as long as people deliberately and consciously accept the propositions implied by those associations as valid truths (i.e., are not motivated to override them). Specifically, the APE model posits that people either accept or reject the validity of propositional judgments implied by activated evaluative associations based on the extent to which those propositions align with other relevant propositions that are salient at the time. In fact, the APE model suggests that one’s default response is to consider the evaluative feelings activated by an attitude target as a valid basis for a propositional evaluative judgment of that target, suggesting propositional judgments often directly reflect the activation of associative evaluations. It is only when those judgments conflict with other accepted propositions that people may engage in extensive deliberation in search of an alternative propositional judgment—as long as they have the opportunity to do so. From this perspective, negative evaluative associations involving the partner would prompt negative judgments (e.g., “I don’t like my partner”) that would be inconsistent with numerous existing beliefs (e.g., “I committed to spending my life with this person and it is important that I like him”), which may lead people to reject the validity of the judgment—as long as they have the opportunity to deliberate. Given that the model implies that people’s default response is to consciously consider the content of their activated evaluative associations, it is not surprising that in their review of the debate regarding whether implicitly assessed attitudes are conscious or unconscious, Gawronski et al. (2006) argue that the extent to which people’s self-reported evaluations correspond with

their implicitly assessed evaluations should depend on various factors, such as their existing subjective beliefs, which may motivate people to accept or reject their evaluative associations as valid (see also Hahn & Gawronski, 2014).

In sum, both the MODE and APE models can be used to argue that people *can* be aware of the feelings they spontaneously experience upon encountering their romantic partner, and that those associations may even inform their explicit judgments. What is critical according to both perspectives, however, is that whether people actually use such spontaneously activated feelings in their deliberative evaluative judgments depends on various motivational factors, such as their goals and subjectively validated beliefs, as well as their ability to deliberate about such issues. That is, people have access to how they feel about their romantic partners and may use that information when deliberating about their relationships, *but* other factors may lead them to override these feelings when making deliberative relationship judgments.

Existing Evidence

There are several reasons to favor the perspective that people have selective insight into their implicitly assessed attitudes over the perspective that people lack the ability to access those associations. First, evidence that suggests a lack of correspondence between implicitly and explicitly assessed evaluations (e.g., Bosson, Swann, & Pennebaker, 2000; Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005), which is often used to argue that people are unaware of their implicitly assessed attitudes, comes from studies that have assessed attitudes in domains known to involve strong motivations to draw particular conclusions (Dovidio, Kawakami, & Beach, 2001; Gawronski, LeBel, & Peters, 2007). For example, in the meta-analysis conducted by Hofmann and colleagues (2005), 70 of a total of 145 effect sizes assessing the association between implicitly and explicitly assessed attitudes involved measurement of “group” or “stereotype” attitudes and 36 involved measurement of one’s attitudes toward one’s self. In both domains, many people may be motivated to report attitudes that are different from their automatic feelings to protect their social identity or self-views, suggesting that lack of correspondence between implicitly and explicitly assessed attitudes may be a result of motivated reporting rather than lack of awareness. In contrast, as highlighted by the quote from Fazio and Olson (2014), early work on implicit assessments demonstrated much stronger correspondence between implicitly assessed attitudes and self-reports when the attitude objects were not so motivationally relevant (e.g., flowers and insects).

Second, work that has directly examined the role of motivation and opportunity in the correspondence between implicitly and explicitly assessed evaluations provides evidence for their role in overriding automatic associations in evaluative judgments (Degner & Wentura, 2008; Dunton & Fazio, 1997; Gawronski, Geschke, & Banse, 2003; Hofmann, Rauch, & Gawronski, 2007; Olson & Fazio, 2004; Olson et al., 2007; Sanbonmatsu & Fazio, 1990; Towles-Schwen & Fazio, 2003; for review, see Fazio & Olson, 2014). For example, Dunton and Fazio (1997) developed a measure of individual differences in the motivation to control prejudice and demonstrated that scores on this measure moderated the association between implicitly and explicitly assessed prejudice. That is, when white participants were given time to deliberately reflect

on their attitudes toward black individuals, those who were most motivated to avoid prejudiced responses demonstrated the weakest correspondence between their implicitly assessed attitudes and their responses on a self-report racism scale. Other studies demonstrate the role of opportunity factors in moderating the link between implicitly and explicitly assessed attitudes (Bartholow, Dickter, & Sestir, 2006; Govorun & Payne, 2006; Koole, Dijksterhuis, & van Knippenberg, 2001; Loersch, Bartholow, Manning, Calanchini, & Sherman, 2015; Phillips & Olson, 2014; Ranganath, Smith, & Nosek, 2008). For example, Ranganath and colleagues (2008) demonstrated greater correspondence between explicit measures and implicit measures of prejudice toward gay individuals when participants’ opportunity to deliberate while completing explicit measures was limited by time constraints.

Finally, several studies that have directly assessed people’s insight into the content of their implicitly assessed attitudes suggests people can access this information. For example, Hahn, Judd, Hirsh, and Blair (2014) directly asked participants to predict their implicitly assessed attitudes toward several outgroups (Blacks, Latinos, Asians, children, celebrities) and demonstrated that people were quite sensitive to between group differences in their attitudes, recognizing, for example, that their implicitly assessed attitudes toward Blacks was more negative than their implicitly assessed attitudes toward children. In similar research, Olson et al. (2007) provided evidence that people also have insight into implicitly assessed self-esteem. Specifically, these authors demonstrated that merely instructing people to avoid misrepresenting themselves on an explicit measure of self-esteem led to considerably stronger correspondence between implicitly and explicitly assessed self-esteem.

Insight Into Spontaneous Partner Evaluations: The Roles of Motivation and Opportunity

What does all this suggest for people’s evaluations of their close relationships? Do people have access to their automatically activated evaluative feelings toward their partners and use those feelings when deliberately evaluating the quality of their relationship? Based on the perspective that implicitly and explicitly assessed attitudes are independent constructs, we would expect there to be very little overlap between these implicitly and explicitly assessed attitudes, regardless of people’s motivations and any constraints on their opportunities to deliberate. But even based on what we argue is the more substantiated perspective that people can have insight into their automatic partner attitudes, which we derived from the MODE and APE models, we might expect people to very rarely use those attitudes when deliberately judging their relationships. Romantic relationships satisfy a variety of critical needs (e.g., belongingness, financial, health, self-regulation; Baumeister & Leary, 1995; Fitzsimons, Finkel, & vanDellen, 2015; Robles, Slatcher, Trombello, & McGinn, 2014) and are typically highly valued at a societal level (Aron & Aron, 1996; Depaulo & Morris, 2005; Finkel, Hui, Carswell, & Larson, 2014). For these reasons, people are typically highly motivated to perceive and report positive evaluations of their romantic relationships (see Murray, 1999) and, as noted, tend to exhibit a positive bias when explicitly evaluating their relationships on average (Gagné & Lydon, 2001; Karney & Frye, 2002; McNulty & Karney, 2001; Murray, 1999; Murray & Holmes, 1993, 1994; Murray,

Holmes, & Griffin, 1996; Neff & Karney, 2003; for reviews, see Fletcher & Kerr, 2010; Gagné & Lydon, 2004; Karney et al., 2001). For example, evidence suggests that people tend to downplay their partner's faults and make benevolent interpretations of their partner's undesirable behaviors (Bradbury & Fincham, 1990; Murray & Holmes, 1993, 1994; Neff & Karney, 2003). In one particularly compelling example of motivations to view relationship partners positively, Murray and colleagues (1996) demonstrated that people tend to evaluate their partners even more positively than their partners evaluated themselves, even though self-evaluations are themselves positively biased (see Alicke & Govorun, 2005).

However, as also noted, most people automatically experience at least some negative feelings toward their partner (McNulty et al., 2019; Zayas & Shoda, 2015; Zayas et al., 2017), and several lines of research are consistent with the idea that people's motivations to view the relationship positively may minimize the likelihood that they use their implicit feelings when deliberately evaluating the quality of their relationship. First, whereas studies of people in intact relationships have documented very small correlations between implicitly and explicitly assessed interpersonal evaluations (Lee, Rogge, & Reis, 2010; McNulty, Olson, Meltzer, & Shaffer, 2013; Scinta & Gable, 2007), several studies document strong and significant correlations between these two types of measures of evaluative feelings toward former partners (i.e., members of dissolved relationships; Banse et al., 2013; Imhoff & Banse, 2011). Although it is not clear that the associations involving former partners are indeed stronger than the associations that have emerged among people in intact relationships, such findings are consistent with the idea that motivations to view a relationship positively, which should be stronger in an intact relationship, can minimize the extent to which people rely on more negative automatic feelings when deliberately evaluating their relationships. Second, Scinta and Gable (2007) demonstrated that participants who had more versus fewer barriers to exiting their relationship (i.e., high levels of investment and low quality of alternatives), who are likely more motivated to view their relationships positively, were more likely to explicitly report being happy in their relationship despite more negative automatic relationship evaluations. Such evidence suggests that the high levels of motivation to see or present a partner in a positive light may lead people to override their more automatic feelings toward their partner when deliberately judging the quality of their relationship.

Of course, these findings lead to the important question to which we alluded earlier—why are people unable to sustain these biased perceptions indefinitely, as evidenced by ubiquitous declines in relationship satisfaction? And moreover, why do automatic partner attitudes predict changes in relationship judgments and other relationship outcomes over time as they have been shown to do in a number of prior studies (Lee et al., 2010; McNulty et al., 2013; McNulty, Olson, Jones, & Acosta, 2017; Scinta & Gable, 2007)? For example, one study demonstrated that automatic partner attitudes predicted changes in marital satisfaction over the first four years of marriage whereas self-reported relationship evaluations did not (McNulty et al., 2013). Answering these questions requires recognizing that motivation is only part of the story. As noted, the MODE model posits that motivated processes that override automatic impulses involve deliberation, which requires time and cognitive capacity; thus, experiences that limit cognitive capacity may

limit partners' ability to override their automatic attitudes, regardless of the strength of any motivation to think otherwise. Such opportunity factors may be a primary reason people eventually evaluate their relationship in a way that is consistent with their spontaneously activated evaluative associations involving their partners, especially if people's powerful motivations to evaluate a relationship positively remain fairly elevated over time, which may be the case given that people often become increasingly invested in their romantic relationship (see Rusbult, 1983).

What factors may limit intimates' ability to override their automatic attitudes toward a close relationship partner? Given that the motivation to view a relationship partner positively is frequently quite strong, it is likely that only significant limits to cognitive capacity will override it (see Vohs, Baumeister, & Schmeichel, 2012). Indeed, goal-relevant motivations can lead to sufficient self-control efforts despite limits to cognitive capacity that are relatively mild, such as completing a Stroop task, choosing between two liked products, or completing an *e*-crossing task (see Job, Dweck, & Walton, 2010; Vohs et al., 2012). Accordingly, and given the strength of people's relationship enhancement motivations, examining these processes in close relationships likely requires measuring real-life conditions shown to substantially limit cognitive capacity. One such condition that is highly relevant over the course of an ongoing relationship is stress. Life stressors are consistently associated with decreased relationship satisfaction and longevity on average (Neff & Karney, 2017; Story & Bradbury, 2004). One explanation for this association is that stressful experiences focus deliberative thought on the stressor (Brandstätter & Schüler, 2013), thus increasing cognitive load and thereby minimizing self-regulatory capacity available for deliberation focused elsewhere (Schoofs, Preuss, & Wolf, 2008; for review see Hofmann, Schmeichel, & Baddeley, 2012). Indeed, not only is stress associated with physiological markers of increased cognitive load in the moment (Conway, Dick, Li, Wang, & Chen, 2013), the lingering rumination and worry that frequently follow stressful experiences is associated with limits to cognitive capacity that can endure over time (Beckwé, Deroost, Koster, De Lissnyder, & De Raedt, 2014). This cognitive load associated with stress likely limits the capacity relationship partners might have to engage in motivated deliberation about their relationship.¹

Consistent with this idea, existing research indicates that one way in which stress disrupts relationships is by limiting intimates' ability to think in ways that are adaptive for the relationship (Buck & Neff, 2012; Neff & Karney, 2009, 2017; Tesser & Beach, 1998). For example, Neff and Karney (2009) showed that stress limited intimates' ability to deliberate about their relationships in ways

¹ It is important to note that the idea that stress, rumination, and worry create cognitive load that reduces cognitive capacity currently available for other deliberative tasks can be distinguished from the idea that stress may also limit future cognitive capacity through ego depletion (see Muraven & Baumeister, 2000), which is more controversial (see Friese et al., 2019). In other words, even if using self-regulatory capacity for one task does not limit the capacity available for a subsequent task, the evidence that stress, worry, and rumination minimize immediate cognitive capacity is reliable enough to suggest stress can increase cognitive load and thereby minimize people's ability to engage in the motivated deliberation required to override their automatic partner attitudes when judging their relationships. That said, any tendency for stress to also reduce cognitive capacity available for subsequent reasoning efforts would make stress even more cognitively taxing.

that were constructive for their relationship satisfaction. Even more pertinent, [Buck and Neff \(2012\)](#) used a daily diary study to show that daily stress was associated with more negative relationship evaluations owing to self-reports of low cognitive capacity. Although these authors did not assess automatic partner attitudes, it is likely that people are not equal in their tendencies to evaluate their relationships more negatively under stress, and we argue that automatic partner attitudes partly account for any such differences. Indeed, research outside relationship science indicates that automatic attitudes are more likely to predict downstream processes when people experience limits to their cognitive capacity (e.g., [Hofmann et al., 2007](#); [Nederkooorn, Houben, Hofmann, Roefs, & Jansen, 2010](#)), and research on relationships shows that people are more likely to rely on their automatic tendencies to trust a partner when they experience relatively lower levels of self-regulatory capacity ([Murray, Gomillion, Holmes, Harris, & Lamarche, 2013](#)).

For these reasons, we expect that stress may moderate the association between automatic partner attitudes and deliberative relationship judgments. People likely periodically evaluate and reevaluate their relationships in response to meaningful relationship events (e.g., conflicts, discussions, dates, sex, etc.). Even if relationship partners remain highly motivated to view their relationships in a positive light, there will inevitably be times over the course of a long-term relationship during which people evaluate their relationships while facing stressors outside of the relationship. Such stressors likely limit their capacity to deliberately override any negative automatic partner associations when forming relationship judgments. It may be for this reason that automatic partner attitudes predict changes in even self-reported relationship satisfaction over time ([McNulty et al., 2013, 2017](#); [Scinta & Gable, 2007](#)). Whereas people who face fewer stressors will more frequently evaluate their relationships under conditions that allow them to override any negative sentiments, people who face more stressors should more frequently lack the capacity to override their attitudes and thus more frequently rely on those attitudes when forming their judgments. Over time, such momentary insights may accumulate, such that people who experience more stress may develop more negative insights that lead them to develop deliberate global evaluations of their relationship that more closely align with their automatic evaluations.

Overview of the Current Studies

Based on the social-cognitive perspectives and evidence reviewed above, we suggest that people can access the evaluative associations that indicate how they feel about their romantic relationships but that the extent to which they use these feelings when evaluating their relationship depends on their current motivations and their opportunity to engage in deliberative processing. Because people are typically highly motivated to view and evaluate their relationships positively, and because automatic partner attitudes are a summary evaluation that typically comprises both positive and negative feelings ([McNulty et al., 2019](#); [Zayas & Shoda, 2015](#); [Zayas et al., 2017](#)), it may be unlikely that people regularly use those attitudes when deliberately evaluating their relationships. Thus, automatic partner attitudes and relationship judgments may not align on average. Nevertheless, automatic attitudes and explicit judgments should align when partners are not motivated to override them or, in what is perhaps a more common scenario, when

partners are motivated to engage in deliberative processing but lack the opportunity to do so.

To test these possibilities, we conducted seven studies. Study 1 was a meta-analysis of the associations between implicitly and explicitly assessed relationship evaluations in extant literature. In Studies 2a–2c, we directly asked people to predict their implicitly assessed automatic partner attitudes. In Study 3, we again asked people to predict their automatic partner attitudes, but this time we attempted activating an accuracy motive (see [Gagné & Lydon, 2004](#)) to override their motivations to evaluate their partners in a positive light by offering them \$500 for making accurate predictions. In Study 4, we examined the effects of relationship dissolution and daily stress on the association between automatic partner attitudes and daily relationship judgments in a daily diary study with longitudinal follow-ups. Finally, in Study 5 we sought to extend the findings from Study 4 by examining whether variance in the stress spouses experienced yearly over the first two years of marriage increased the correspondence between their automatic partner evaluations and explicit relationship judgments. We also conducted analyses in Study 5 to help rule out alternative explanations.

Study 1

Our first step in determining the association between automatic partner attitudes and deliberative relationship judgments was to survey past literature incorporating such evaluations. We were not aware of any systematic attempts to establish the degree of association between automatic and deliberative relationship judgments; thus, in Study 1, we conducted a meta-analysis of all studies of close relationships that utilized both explicitly and implicitly measured relationship evaluations. Given that people's motivations to evaluate their relationships positively should lead them to override the negativity that appears to exist in most automatic partner evaluations ([McNulty et al., 2019](#); [Zayas & Shoda, 2015](#); [Zayas et al., 2017](#)), we expected very little correspondence between implicitly and explicitly assessed relationship evaluations; however, any limited opportunity experienced by any people in these samples may lead to some correspondence on average. We also planned to consider testing for moderation by any notable factors identified (e.g., motivation and opportunity factors, type of implicit measure), observed heterogeneity permitting.

Method

Search strategy. We conducted electronic searches in PsycINFO and Google Scholar using various combinations of the following search terms: *implicit relationship satisfaction*, *relationship satisfaction*, *automatic attitudes*, and *implicit attitudes*. In addition, we manually reviewed reference lists from the relevant publications identified as well as articles that cited those publications. Finally, we solicited unpublished data using the Society for Personality and Social Psychology listserv. All searches were completed by May 2017.

Eligibility and exclusion criteria. To be included in the meta-analysis, studies needed to (a) contain at least one measure of explicit relationship or partner evaluations, (b) contain at least one measure of implicit relationship or partner evaluations, and (c) include adults in ongoing romantic relationships. Because our

main objective was to ascertain an average association between explicit and implicit relationship evaluations in ongoing romantic relationships, we did not include studies observing other variables sometimes labeled as implicit, such as implicit theories about romantic relationships and implicit preferences, and we did not include studies containing explicit or implicit evaluations of dissolved relationships. We also excluded studies that were unavailable in English translations.

Data extraction and coding of variables. Altogether, our searches revealed 12 published articles (2007–2017), four dissertations (2006–2015), and two unpublished data sets containing correlations between explicit and implicit relationship evaluations. Taken together, these sources contained 23 unique samples. Given that some samples contained multiple measures, we were able to extract 86 correlations based on a total of 3,557 romantic partners. A list of all the correlations and their sources is presented in Table 1. We coded all data sources for the following objective information: literature classification (e.g., peer-reviewed, gray literature, etc.), sample size, type of relationship (e.g., dating, married, etc.), average relationship length when available, and type of explicit and implicit measure(s) used in each study. For instances in which the exact sample size for a correlation was not provided in the text or in a correlation table, we used the sample size provided for the entire study.

Results

Before combining the effect sizes to estimate the average association between explicit and implicit relationship evaluations, we took several steps to prepare the correlations for analysis. First, some implicit measures, such as the IAT, evaluative priming task, and go/no-go association task (GNAT), provide separate values for the degree to which participants associate their partner with good concepts and with bad concepts. Frequently, these values are combined (e.g., positive values are subtracted from negative values) to form an overall measure of net positivity. Given such net-positivity indices better account for individual differences in response tendencies (Fazio & Olson, 2003), we used them when they were available. Nevertheless, for cases in which only correlations involving both positive and negative categories were available, both were used but we reversed the signs of the correlations involving negative targets to ensure the correlations reflected attitudes that had the same directional valence (i.e., higher values correspond with more positive attitudes and lower values correspond with more negative attitudes). Second, because many of the correlations in our analysis were derived from the same samples, we created a synthetic effect size by averaging across all of the correlations drawn from the same sample to account for dependence of these effect sizes as recommended by Lipsey and Wilson (2001). Third, because r values do not have a standard distribution, all correlations were converted to Fisher's z scale as recommended by Shadish and Haddock (2009). Finally, correlations were weighted against the inverse of their variances to account for differences in sample sizes across studies. We completed all analyses in Microsoft Excel using equations provided by Shadish and Haddock (2009) as well as SPSS Statistics software package.

As shown in the forest plot presented in Figure 1, at the descriptive level there appeared to be some variation in effect sizes across studies. We initially planned to conduct a random-effects

model to allow us to test for moderation by different study factors (e.g., type of implicit measure). However, two tests of heterogeneity revealed a surprising lack of variance across studies, suggesting a fixed-effects model was more appropriate. First, Cochran's Q statistic was not significant, $k = 86$, $Q(85) = 37.92$, ns , indicating homogeneity of effect sizes across samples. Second, an estimate of I^2 , a statistic that indicates the percent of variability that is due to heterogeneity as opposed to sampling error, resulted in a negative value, $I^2 = -1.24$. When I^2 values are negative, Higgins, Thompson, Deeks, and Altman (2003) recommend setting the value equal to zero. Thus, our estimate of $I^2 = 0\%$ indicated no observed heterogeneity across effect sizes.

The fixed-effects model revealed a significant but small association between explicitly and implicitly assessed relationship evaluations, $r = .04$, 95% CI [0.02, 0.06]. The forest plot in Figure 1 depicts all effects, with the diamond at the bottom of the plot indicating the overall effect size.

Discussion

Our meta-analysis of studies of ongoing close relationships that contained both explicitly and implicitly assessed relationship evaluations revealed a significant but small association between these two types of evaluations that did not vary across studies. This result is consistent with our prediction that people's motivations to evaluate their relationship positively can prevent them from using their automatic partner attitudes, which frequently contain negative associations (McNulty et al., 2019; Zayas & Shoda, 2015), in their deliberative relationship evaluations on average. Of course, one may be tempted to conclude that implicit and explicit relationship evaluations do not correspond with each other at all, under any conditions. Indeed, not only do some perspectives suggest they reflect outputs from independent processing systems (e.g., Greenwald & Banaji, 1995; Wilson et al., 2000), implicit measures are frequently criticized for their reliability (see Gawronski & De Houwer, 2014; LeBel & Paunonen, 2011), and a lack of reliability alone may obscure associations between the two measures. We think such a conclusion may be premature for several reasons. First, the meta-analysis may have revealed only a weak overall association between implicit and explicit measures because it provides only a broad survey of the association between various measures of automatic feelings and deliberative judgments used in all studies. Indeed, it is possible that the measures of deliberative relationship judgments in many of the studies did not directly match the construct captured by many of the implicit measures. For example, implicit measures typically capture participants' spontaneous affective responses to a romantic partner whereas explicit measures capture their more global impressions of their relationship; thus, it is possible that a discrepancy in the attitude target might account for the small association between implicit and explicit measures. Second, the meta-analysis may have revealed no variance in the weak overall association between implicit and explicit measures because tests of variance in the effect necessarily relied on *between-study* differences, rather than *within-study* differences. That is, most of these studies realized similar assessment situations that may favor deliberation and allow for motivated correction of explicit evaluations whereas many of the variables derived from our theoretical frameworks, such as opportunity and

Table 1
Articles Included for Meta-Analysis

Study	Type	N	Relationship type	Implicit measure	Explicit measure	Correlation(s)
Banse et al. (2013)	Peer-reviewed	59	Dating	AMP	Relationship assessment scale	-.01
				AMP	Explicit partner attitude	.14
				IAT	Relationship assessment scale	-.14
Banse and Kowalick (2007)	Peer-reviewed	117	Combination	IAT	Explicit partner attitude	.10
				IAT	Relationship assessment scale	.07 (W)
				IAT	Explicit partner attitude	.28 (W)
				IAT	Explicit partner attitude	.08 (W)
				IAT	Explicit partner attitude	-.21 (W)
Canevello (2006)	Dissertation	17	Combination	IAT	Relationship assessment scale	.09
				IAT (relationship)	Partner esteem	.04
				IAT (relationship)	Relationship assessment scale	-.05
				IAT (partner)	Relationship assessment scale	.04
				IAT (partner)	Partner esteem	.04
				IAT (relationship)	PANAS (modified for partner)	.18
				IAT (relationship)	PANAS (modified for relationship)	.21
				IAT (partner)	PANAS (modified for partner)	.12
				IAT (partner)	PANAS (modified for relationship)	.06
				IAT (partner)	Explicit sexual desire	.17
de Jong (2016)	Dissertation	279	Combination	Implicit sexual desire	Explicit sexual desire	.078
				Combination	Implicit sexual desire	.14
				Combination	Implicit sexual desire	.04
Hicks and McNulty (2016)	Unpublished	127	Combination	EPT	Kansas marital satisfaction scale	.04
				EPT	Semantic differential	.08
				EPT	Quality marriage index	.10
Hicks et al. (2016)	Peer-reviewed	114	Married	EPT	Quality marriage index	.02 (M)
				EPT	Semantic differential	.07 (W)
				EPT	Semantic differential	-.05 (M)
				EPT	Quality marriage index	.00 (W)
				EPT	Quality marriage index	.04 (M)
				EPT	Kansas marital satisfaction scale	.02 (W)
				EPT	Kansas marital satisfaction scale	.06 (M)
				EPT	Quality marriage index	-.08 (W)
				EPT	Quality marriage index	.01 (M)
				EPT	Kansas marital satisfaction scale	-.02 (W)
Sample 2 baseline	Peer-reviewed	54	Married	EPT	Quality marriage index	-.15 (M)
				EPT	Quality marriage index	.08 (W)
				EPT	Kansas marital satisfaction scale	-.01 (M)
				EPT	Quality marriage index	.17 (W)
				EPT	Quality marriage index	.19
LeBel and Campbell (2009) LeBel and Campbell (2013)	Peer-reviewed	134	Combination	NLT	Explicit partner perceptions	.10
				NLT	Daily satisfaction	.22
				NLT	Couples satisfaction index	.14 (M)
				NLT	Couples satisfaction index	.05 (M)
				NLT	Couples satisfaction index	.05 (W)
				NLT	Couples satisfaction index	.02 (W)
				NLT	Couples satisfaction index	-.06 (M)
				NLT	Couples satisfaction index	-.05 (M)
				NLT	Couples satisfaction index	.17 (W)
				NLT	Couples satisfaction index	-.13 (W)
Lee (2011)	Dissertation	72	Combination	GNAT	Marital adjustment test	-.25
				GNAT	GNAT	.14
				GNAT	GNAT	.05 (M)
				GNAT	GNAT	.05 (W)
				GNAT	GNAT	.02 (W)
Sample 2	Peer-reviewed	522	Combination	GNAT	Couples satisfaction index	-.06 (M)
				GNAT	Couples satisfaction index	-.05 (M)
				GNAT	Couples satisfaction index	.17 (W)
				GNAT	Couples satisfaction index	-.13 (W)
				GNAT	Couples satisfaction index	.27
Lee, Rogge, and Reis (2010)	Peer-reviewed	122	Combination	GNAT	Marital adjustment test	-.25
				GNAT	GNAT	.14
				GNAT	GNAT	.05 (M)
				GNAT	GNAT	.05 (W)
				GNAT	GNAT	.02 (W)

Table 1 (continued)

Study	Type	N	Relationship type	Implicit measure	Explicit measure	Correlation(s)
Sample 2		122		GNAT	Couples satisfaction index	.27
		122		GNAT	Couples satisfaction index	-.21
		102	Combination	GNAT	Couples satisfaction index	.05
Maniaci (2015)	Dissertation	102		GNAT	Couples satisfaction index	.01
		175	Married	GNAT	Couples satisfaction index	.14 (M)
McNulty, Olson, Meltzer, and Shaffer (2013)	Peer-reviewed	175		GNAT	Couples satisfaction index	.00 (W)
		127	Married	EPT	Semantic differential	.04 (M)
Final		127		EPT	Semantic differential	-.05 (W)
		54		EPT	Semantic differential	-.07 (M)
McNulty, Olson, Jones, and Acosta (2017)	Peer-reviewed	55		EPT	Semantic differential	.15 (W)
	Peer-reviewed	246	Married	EPT	Quality marriage index	-.04
McNulty, Baker, and Olson (2014)	Peer-reviewed	133	Married	EPT	Interpersonal qualities scale	-.04 (M)
		131		EPT	Interpersonal qualities scale	.01 (W)
Murray, Holmes, and Pinkus (2010)	Peer-reviewed	127	Married	IAT	Interpersonal qualities scale	-.008 (M)
		127		IAT	Interpersonal qualities scale	.105 (W)
Murray, Gomillion, Holmes, Harris, and Lamarche (2013)	Peer-reviewed	127		IAT	Global marital satisfaction	.012 (M)
		127		IAT	Global marital satisfaction	.156 (W)
Righetti (2014)	Peer-reviewed	140		IAT	Interpersonal qualities scale	.107 (M)
		140		IAT	Interpersonal qualities scale	.079 (W)
Scinta and Gable (2007)	Unpublished	140		IAT	Global marital satisfaction	.063 (M)
	Peer-reviewed	248	Combination	SC-IAT	Global marital satisfaction	.027 (W)
Sample 2		51	Dating	IAT	Rusbult satisfaction scale	.10
		51		IAT	Rusbult satisfaction scale	.051
		51		IAT	Interpersonal qualities scale-pos	-.005
		51		IAT	Interpersonal qualities scale-neg	.019
		51		SPTpos	Rusbult satisfaction scale	-.150
		51		SPTpos	Interpersonal qualities scale-pos	-.057
		51		SPTpos	Interpersonal qualities scale-neg	.040
		51		SPTneg	Rusbult satisfaction scale	.067
		51		SPTneg	Interpersonal qualities scale-pos	-.113
		51		SPTneg	Interpersonal qualities scale-neg	-.146
		81	Dating	SPTpos	Rusbult satisfaction scale	-.037
		81		SPTpos	Interpersonal qualities scale-pos	-.129
		81		SPTpos	Interpersonal qualities scale-neg	-.210
		81		SPTneg	Rusbult satisfaction scale	-.030
		81		SPTneg	Interpersonal qualities scale-pos	-.154
		81		SPTneg	Interpersonal qualities scale-neg	-.050

Note. AMP = affect misattribution procedure; EPT = Evaluative Priming Task; GNAT = Go/no-go Association Task; IAT = Implicit Association Task; NLT = Name Letter Task; SPT = Sequential Priming Task. McNulty et al. (2013, 2014), and Sample 2 from Hicks et al. (2016) correlations are taken from the same sample of newlyweds but relied on different explicit measures.

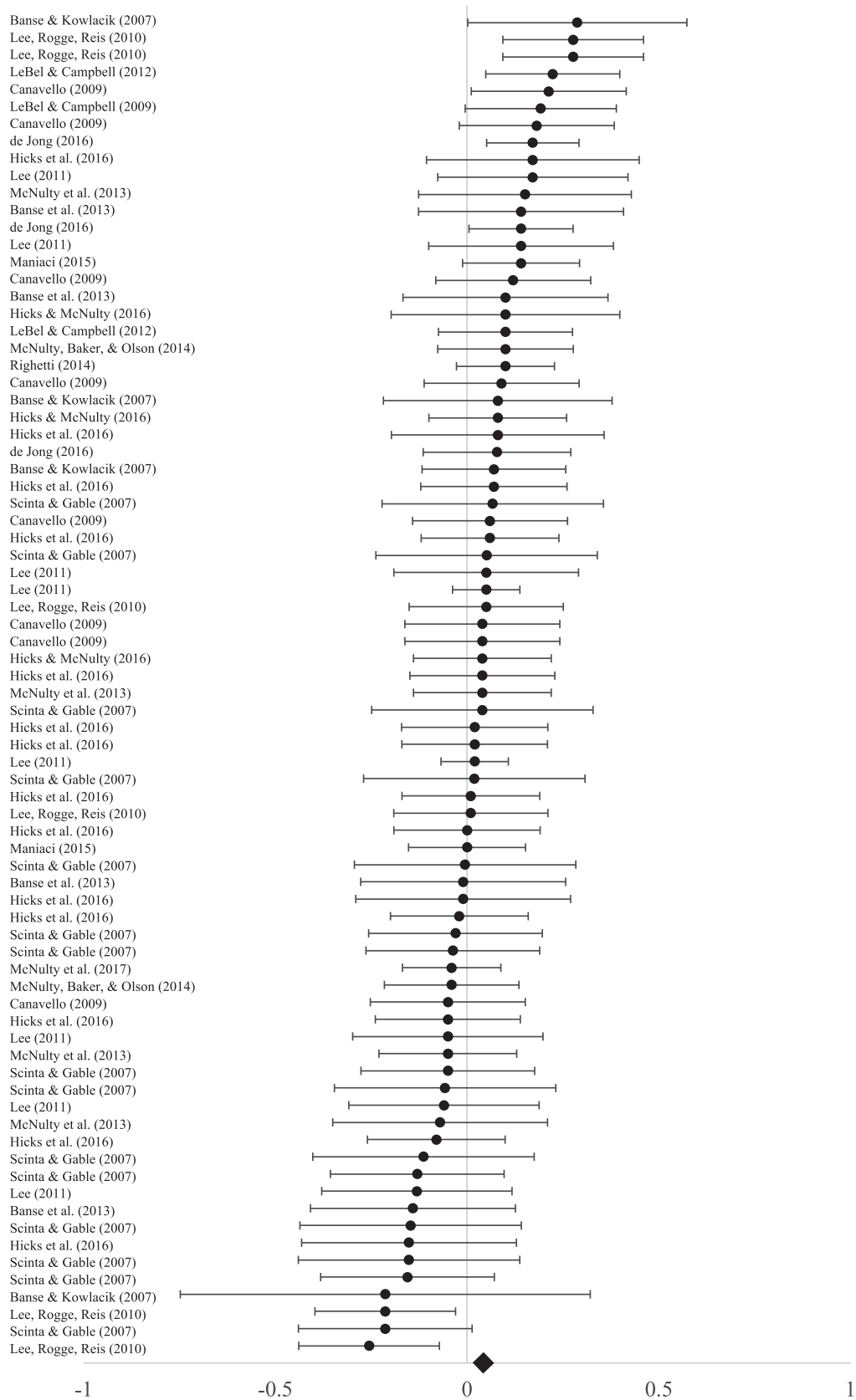


Figure 1. Forrest plot of included correlations.

motivation, may vary from person to person or situation to situation within study, rather than between studies.

To address these issues with a more sophisticated examination of the correspondence between automatic and deliberative interpersonal evaluations, we conducted a series of more systematic tests of the key theoretical factors identified in our exposition. To address the first issue, Studies 2a–2c tested whether implicit and explicit measures aligned more strongly when we directly asked people to report the spontaneous feelings they experience when encountering their relationship partner. To address the second issue, Studies 3–5 examined the moderating roles of motivation and opportunity factors in the association between automatic and deliberative relationship evaluations.

Study 2a–2c

Method

Participants. Participants in Study 2a were 208 members of 104 couples drawn from a broader longitudinal study of newlywed couples. We recruited recently married couples in the area through Facebook advertising. Interested couples who responded to the invitation were screened in a telephone interview to ensure they met the following criteria, given the broader goals of the study: (a) they had been married less than four months and both partners could attend a laboratory session within the first four months of their marriage, (b) they were at least 18 years of age, and (c) they spoke English (to ensure comprehension of questionnaires). In order to be included in the present analyses, spouses had to complete a partner evaluative priming task (PEPT) that assessed their automatic attitudes toward their partner during the in-laboratory portion of the study and make predictions regarding those automatic partner attitudes. Prior to our analyses, we excluded four spouses who made errors completing the PEPT (one husband who did not adequately complete the orientation block and one husband and two wives who made errors on 20% or more of the critical trials, our a priori determined cutoff). We also excluded, a priori, three husbands and three wives whose automatic partner attitude scores were more than three standard deviations beyond the sample mean. The final sample consisted of 198 individuals (94 husbands, 104 wives). These spouses were 30.92 years of age ($SD = 10.30$) on average, and couples had been together for an average of 3.77 years ($SD = 2.96$) prior to marriage. The majority of the sample (94.9%) identified as heterosexual.

Participants in Study 2b were 113 undergraduate students (19% male) who participated in exchange for partial course credit. All participants were required to be at least 18 years of age and currently in a romantic relationship for at least three months. Prior to our analyses, we excluded three women who reported relationships shorter than three months and eight participants who made errors completing the PEPT (one woman who did not adequately complete the orientation block and four men and three women who made errors on 20% or more of the critical trials). From that sample, we excluded, a priori, one woman who had an automatic partner attitude score more than three standard deviations beyond the sample mean. Students in the final sample ($n = 101$) reported an average age of 20.04 years ($SD = 1.26$) and had been in a relationship with their current partner for an average of 1.79 years

($SD = 1.56$). The majority of the sample (97%) identified as heterosexual.

Participants in Study 2c were 286 workers from Amazon's Mechanical Turk (57% male) who participated in exchange for 50 cents (U.S.). All participants were required to be at least 18 years of age and currently in a romantic relationship for at least three months. Prior to data analysis, we excluded two men who reported relationships shorter than three months and 46 participants who made errors completing the PEPT (three men who did not adequately complete the orientation block and 33 men and 10 women who made errors on 20% or more of the critical trials). From that sample, we excluded, a priori, one man and three women who had automatic partner attitude scores more than three standard deviations beyond the sample mean. Participants in the final sample ($n = 234$) reported an average age of 35.26 years ($SD = 12.16$) and had been in a relationship with their current partner for an average of 7.63 years ($SD = 9.50$). The majority of the sample (95.7%) identified as heterosexual.

Procedure. Given that Study 2a was conducted as part of a broader longitudinal study of newlywed couples, the procedure used varies slightly from that used in Studies 2b and 2c. After enrolling in Study 2a, newlyweds were scheduled to attend a laboratory session and e-mailed a link to Qualtrics.com, where they individually completed surveys beyond the scope of the current analysis before their laboratory session. At their laboratory sessions, participants were photographed and then completed the PEPT, as well as a variety of tasks beyond the scope of the current analyses. Immediately prior to completion of the evaluative priming task, individuals were asked to predict what the task would reveal about their automatic partner attitudes. Couples were compensated \$100 for completing the surveys and laboratory session. This study received ethics approval from the Institutional Review Board at Florida State University.

The procedures for Study 2b and 2c were identical. After enrolling in the study, participants were directed to a survey in Qualtrics.com. After indicating their age, gender, and sexuality, participants proceeded to the first portion of the study in which they made predictions about their automatic partner attitude scores and completed a version of the same evaluative priming using Inquisit Web. Predictions and the evaluative priming task were counterbalanced to control for the possibility that completing the priming task might influence predictions. Following this portion of the study, participants answered a variety of questionnaires included to measure potential individual differences in motivation and ability to access automatic relationship evaluations. Given that none of these individual difference measures reliably interacted with automatic partner attitudes to significantly predict attitude predictions in these samples, these results have been included in the [online supplemental materials](#) but will not be discussed further. Both studies received ethics approval from the Institutional Review Board at Florida State University.

Measures.

Automatic partner attitudes. In all three studies, we assessed automatic partner attitudes using versions of the PEPT (see McNulty et al., 2013). Modeled after the evaluative priming task developed by Fazio et al. (1995), the task implicitly measures participants' automatically activated partner attitudes by measuring RTs to positive and negative words following exposure to primes of the partner. Speaking to the measure's validity, previous

research utilizing the PEPT has demonstrated that it captures the affective associations it is meant to capture (Hicks et al., 2016, 2018; McNulty et al., 2017) and that it predicts theoretically meaningful outcomes (McNulty et al., 2013, 2019).

In Study 2a, the PEPT was conducted in MediaLab and DirectRT and the primes used were photos primes of (a) the participant, (b) their partner, and (c) strangers who were the same sex as their spouse. Individuals appeared in one of four orientations in each photo: (a) a frontal view of the face, (b) a profile view of the face, (c) a frontal view of the entire body while standing, and (d) a frontal view of the entire body while sitting. In Studies 2b and 2c, the PEPT was conducted in Inquisit Web and names were used as primes in lieu of photos because of the difficulty of acquiring standardized pictures of participants and their partners in the context of an online study. In those studies, participants were asked to submit their name and the name of their relationship partner to be used as primes, and generic names of opposite sex strangers (e.g., Lance, Chelsea) were held constant across all participants. Though there is evidence that photo primes have stronger priming effects than words (De Houwer & Hermans, 1994), other work demonstrates that both photo- and name-primes adequately activate the person-schemata (Banse, 2001).

During the task, each participant completed three blocks, each consisting of 48 trials. In each block, participants indicated the valence of eight affectively charged positive target words (outstanding, charming, delightful, fabulous, likable, nice, excellent, wonderful) and eight affectively charged negative target words (sickening, awful, disturbing, horrible, irritating, disgusting, repulsive, rotten) as quickly as possible after being exposed to the primes. Participants were told to pay attention to primes but to focus on responding to the meaning of the word. All primes were presented for 300 ms with no delay (i.e., stimulus onset asynchrony was 300 ms). The intertrial interval was 1,000 ms. Each participant first completed a baseline block that involved responding to each positive and negative word twice (32 trials) after seeing a neutral prime (a row of asterisks). This baseline practice block provides an index of individuals' RTs (RTs) to the words themselves, which are known to be associated with several individual differences (see Unkelbach, Fiedler, Bayer, Stegmüller, & Danner, 2008) and which we accounted for as described below. Immediately following this block, participants completed two blocks of 48

trials each (each of the eight positive and eight negative target words following each of three priming categories). We assessed participants' RTs to indicate the valence of the target words on all trials. Following common recommendations for data management (Wentura & Degner, 2010), we excluded (a) responses that were either slower than 2,000 ms or faster than 300 ms and (b) responses that were inaccurate.

The measure derived from the spouse primes was the primary focus of the current investigation; the measures derived from the self-primes and the stranger primes were not analyzed for this line of inquiry. Traditionally, researchers have formed priming measures that account for RTs following neutral primes by calculating the difference between those RTs to neutral primes and RTs to critical primes (see Fazio et al., 1995; Wentura & Degner, 2010; Wittenbrink, 2007). Such a difference can be conceptualized as a change in reaction time (RT) from the neutral to the critical prime, otherwise referred to as a facilitation score—the raw difference between RTs to neutral versus spouse primes. In line with this tradition, we formed the difference between RTs to positive words following neutral versus spouse primes (RTs to positive, neutral - RTs to positive, spouse) and subtracted from it the difference between RTs to negative words following neutral versus spouse primes (RTs to negative, neutral - RTs to negative, spouse) [that is, (RT positive, neutral - RT positive, spouse) - (RT negative, neutral - RT negative, spouse)]; thus higher scores indicate greater facilitation to positive words following spouse primes. However, given that such raw difference scores do not account for absolute levels of the their component variables (Edwards, 1994), in this case the RTs themselves, we additionally controlled for the RTs to positive and negative words after the neutral primes in all analyses as recommended by McNulty et al. (2019) because they may be correlated with important individual differences as noted earlier (Unkelbach et al., 2008). Descriptive statistics and reliabilities of the PEPT for each sample can be found in Table 2.

Predictions of automatic partner attitudes. In all three studies, participants predicted what the PEPT would reveal about their attitudes toward their relationship partner. Specifically, we provided the following instructions:

The task you are about to complete will measure the feelings that you experience immediately upon encountering your relationship partner.

Table 2
Descriptive Statistics and Reliabilities for Implicit Measures in Study 2

Measure	Block 1			Block 2			Split half	Attitude index
	<i>M</i>	<i>SD</i>	α	<i>M</i>	<i>SD</i>	α		
Study 2a: Newlyweds								
Facilitation to pos. words	71.89	159.47	.65	143.66	161.45	.60	.77	—
Facilitation to neg. words	93.16	167.64	.71	157.41	176.16	.60	.78	—
Difference	-21.27	129.65	—	-13.75	137.01	—	.36	-17.51 (110.13)
Study 2b: Students								
Facilitation to pos. words	-0.30	95.87	.93	54.28	80.83	.89	.61	—
Facilitation to neg. words	5.45	109.54	.88	53.82	94.57	.92	.50	—
Difference	-5.75	118.39	—	-0.46	94.82	—	.40	-2.65 (89.50)
Study 2c: MTurk								
Facilitation to pos. words	5.99	94.37	.89	52.03	101.19	.92	.53	—
Facilitation to neg. words	5.95	102.88	.89	67.75	110.30	.94	.47	—
Difference	0.05	123.69	—	-15.72	117.22	—	.39	-9.16 (98.41)

What do you think this measure will reveal regarding your immediate positive and negative feelings about your partner?

In Study 2a, spouses made their predictions using a sliding bar that ranged from 0 (*Extremely negative feelings*) to 100 (*Extremely positive feelings*) such that a higher prediction would suggest a lack of negative attitudes. Upon further consideration, we realized that even these predictions do not mirror the scoring of the PEPT, which uses the *difference* between positive and negative evaluative feelings. Thus, in Studies 2b and 2c, we asked participants to estimate their positive and negative feelings using two separate slide bars where estimates ranged from 0 (*No positive/negative feelings*) to 100 (*Extremely positive/negative feelings*). We then created an index of net positivity to resemble the PEPT by subtracting negative estimates from positive estimates.

Results

On average, participants in all three samples estimated that the PEPT would reveal that they held mostly positive feelings toward their partner. In Study 2a, the overall prediction was quite high ($M = 87.02$, $SD = 15.49$). In Study 2b and 2c, where participants predicted their positive and negative feelings separately, the difference (positive – negative) was fairly high (in Study 2b: $M = 57.92$, $SD = 35.42$; in Study 2c: $M = 57.24$, $SD = 38.81$). Further, in these two studies participants' predictions of their positive feelings were significantly higher than their predictions of their negative feelings, indicating that they believed that their partners activated more positive than negative feelings [in Study 2b—for positive predictions, $M = 80.25$, $SD = 18.25$; for negative predictions, $M = 22.33$, $SD = 24.20$; $t(100) = 16.43$, $p < .001$; in Study 2c—for positive predictions, $M = 79.81$, $SD = 20.98$; for negative predictions, $M = 22.58$, $SD = 26.02$; $t(233) = 22.56$, $p < .001$]. In contrast, participants did not differ in the extent to which their partners facilitated responses to positive and negative words in Studies 2b and 2c [for Study 1b, $t(100) = -0.30$, $p = .767$; for Study 1c, $t(100) = -0.30$, $p = .767$], and were actually faster to categorize negative words than positive words in Study 1a, $t(197) = -2.24$, $p = .026$, providing some evidence that implicitly assessed automatic partner attitudes contain more negative feelings than do explicitly assessed evaluations.

We examined the extent to which people's predictions of their feelings corresponded to their automatic partner attitudes in all three studies using partial correlations that controlled for participants' baseline RTs to positive and negative words after the neutral primes. As can be seen in Table 3, these analyses revealed nonsignificant associations between participants' attitude predictions and their automatic partner attitudes across all three studies. These estimates did not differ based on whether participants made their

predictions before or after completing the PEPT in the two studies that counterbalanced this order [Study 2b: $\beta = 0.03$, $t(100) = 0.26$, $p = .797$; Study 2c: $\beta = 0.05$, $t(233) = 0.84$, $p = .402$]. Furthermore, a meta-analysis combining the final samples of Studies 2a, 2b, and 2c revealed a nonsignificant association between attitude predictions and automatic partner attitudes that was identical to the one that emerged in the internal meta-analysis reported in Study 1, $r = .04$, 95% CI $[-0.05, 0.09]$.

Discussion

In all three studies, participants' explicit predictions about their automatic partner attitudes were not associated with their actual automatic partner attitudes, even when they were given specific instructions to report the spontaneous affect they experience when they encounter their romantic partner. This result helps rule out the possibility that the results of the meta-analysis reported in Study 1 reflects a disconnect in what participants are trying to report (relationship satisfaction vs. partner evaluation) and thus provides further evidence that the disconnect between automatic partner attitudes and self-reported interpersonal evaluations may emerge because people are typically motivated to engage in biased deliberative processing when making judgments about their romantic relationships and, at any given time, typically have the cognitive capacity to do so.

Of course, it nevertheless remains possible that this disconnect emerges because people have no insight into their spontaneously activated feelings toward their partners. Thus, in Study 3, we directly tested whether motivated reasoning plays a role in the association between implicitly and explicitly assessed interpersonal evaluations by manipulating people's motivation to view their relationship positively by offering them a financial incentive for reporting their spontaneous feelings accurately. Specifically, we repeated the design used in Study 2 but this time we offered a \$500 reward for the one individual who was most accurate in predicting their automatic partner attitude, assuming this would motivate participants toward more accurate predictions of their attitudes (see Vohs, 2015). Based on the perspective that people do not have access to their automatic partner attitudes, altering their motivations to report them should not influence the strength of the association between automatic evaluations and explicit judgments; but based on our perspective that motivation plays a critical role in the strength of the association, altering people's motivations to accurately report their automatic partner attitudes should strengthen the association between implicitly assessed evaluations and more deliberative judgments.

Study 3

Method

Participants. Participants were 302 workers from Amazon's Mechanical Turk (51% male) who were in an ongoing romantic relationship and completed all relevant measures in exchange for 50 cents (U.S.). As in Studies 2a–2c, all participants were required to be at least 18 years of age and in their relationship for at least three months. Thus, prior to our analyses, we excluded six participants (four men and two women) who reported relationships

Table 3
Partial Correlations Between Attitude Predictions and Automatic Partner Attitudes

Sample	<i>N</i>	<i>r</i>	<i>p</i>
2a: Newlywed couples	198	.06	.550
2b: Undergraduate students	101	–.04	.668
2c: MTurk workers	234	.05	.485
Study 2 meta-analysis	533	.04	<i>ns</i>

shorter than three months. Also prior to analyses, we a priori excluded 32 participants who made errors on the PEPT (six men and one woman did not adequately complete the orientation block and 19 men and six women made errors on 20% or more of the critical trials of the PEPT). From this sample, we excluded, a priori, an additional two participants who had automatic partner attitude scores that were three standard deviations beyond the sample mean. Participants in the final sample ($n = 262$) reported an average age of 38.17 years ($SD = 11.97$) and had been in a relationship with their current partner for an average of 10.06 years ($SD = 10.08$). The majority of the sample (94.66%) identified as heterosexual.

Procedure. The procedure for Study 3 was identical to that of Studies 2b and 2c with the exceptions that (a) participants were offered a chance to win \$500 for accurately predicting their automatic attitudes toward their partner and (b) all participants made their predictions prior to participants' completion of the PEPT (because Studies 2b and 2c demonstrated no effect of task order on participants' accuracy in predicting their automatic partner attitudes). Participants were asked to estimate what the task would reveal regarding their immediate positive and negative feelings about their partner but encouraged to make their predictions as accurately as possible because the person closest to identifying the positivity and negativity of their automatic partner attitudes (relative to others in the sample) would receive a \$500 reward at the end of the study.² After making their predictions, participants were directed to Inquisit Web to complete the PEPT. This study received ethics approval from the Institutional Review Board at Florida State University.

Measures.

Automatic partner attitudes. As in Studies 2b and 2c, automatic partner evaluations were captured using the PEPT with names submitted by participants serving as stimuli. Descriptive statistics and reliabilities of the PEPT can be found in Table 4.

Automatic partner attitude predictions. As in Studies 2b and 2c, participants were asked to predict what the task would reveal about their automatic attitudes toward their partner using two slide bars where positive and negative feelings were estimated separately with estimates ranging from 0 (*No positive/negative feelings*) to 100 (*Extremely positive/negative feelings*).

Results

Like in Studies 2a–2c, participants estimated that the PEPT would reveal that they held mostly positive feelings toward their partner ($M = 57.55$, $SD = 35.43$), and as in Studies 2b and 2c participant's positive predictions were higher than their negative predictions [for positive predictions, $M = 81.20$, $SD = 15.57$; for negative predictions, $M = 23.65$, $SD = 25.82$; $t(261) = 26.29$, $p < .001$] In contrast, as was also the case in Studies 2b and 2c, participants did not quite differ in the extent to which their partners facilitated responses to positive and negative words in Study 3 [for responses to partner following positive words $M = 11.22$, $SD = 96.56$; for responses to partner following negative words $M = 21.78$, $SD = 92.42$; $t(261) = -1.76$, $p = .080$], providing additional evidence that implicitly assessed automatic partner attitudes involve ample negative associations.

Regarding the primary aim, however, this time the partial correlation between participants' automatic partner attitudes and in-

centivized attitude predictions was statistically significant, $r(258) = .21$, $p < .001$, suggesting that incentivizing participants to report their attitudes accurately influenced the degree to which they utilized their automatic partner attitudes when deliberately judging their relationship. To test whether this correlation was significantly different from the one's obtained in the prior studies, we utilized a Fisher's r to z transformation (Cohen & Cohen, 1983), which demonstrated that the association between automatic evaluations and deliberative relationship judgments in Study 3 was indeed significantly stronger than the one obtained in the meta-analysis in Study 1 ($z = 2.70$, $p = .004$) and the internal meta-analysis of the three effects from Study 2 ($z = 2.02$, $p = .022$).

Discussion

This result offers preliminary evidence that, when specifically motivated to do so, people can have at least some insight into their automatic partner attitudes. In this case, we argue that the motivation to gain \$500 was strong enough to compete with the motivation to perceive or report that one is happy with one's partner. Of course, one alternative explanation of our finding is that the participants in Study 3 faked their responses on the PEPT to achieve scores that would match their deliberative predictions of their attitudes. Indeed, all participants estimated their partner attitudes prior to taking the PEPT, and there is evidence that in some cases participants may control their responses on implicit measures like the IAT (Fiedler & Bluemke, 2005; Steffens, 2004). That said, we are somewhat comforted by the fact that procedures for cleaning RT data in the PEPT, such as excluding RTs greater than 2 s, should have minimized the influence of such controlled responses. Indeed, the mean score on the PEPT in Study 3 was similar to the score obtained in Studies 2a–2c.

Taken together, then, the studies described so far are consistent with the perspective that people are typically motivated to engage in positively biased deliberative processing when explicitly judging their romantic relationships and thus override their automatic partner attitudes, which contain negative feelings. When otherwise motivated, however, they appear to use their automatic feelings in forming their deliberative judgments.

Study 4

Study 4 had two goals, to conceptually replicate the influence of motivational factors in contributing to positively biased explicit relationship evaluations and to examine the role of opportunity factors in undermining such biased processing. To this end, Study 4 utilized a 14-day diary that included daily observations of automatic attitudes, daily reports of explicit relationship satisfaction, and daily reports of stress, which is known to minimize cognitive capacity (Hofmann et al., 2012). Following the 14-day diary, participants completed a series of follow-up assessments every four months that also assessed automatic and deliberative attitudes of the partner and relationship dissolution (i.e., relationship motivation) over the subsequent 12 months.

² We identified the participant closest to predicting their automatic partner attitudes by standardizing automatic partner attitudes scores and participants' predictions of their automatic partner attitudes and calculating difference scores between these two variables. The participant with the smallest difference score received the \$500 reward.

Table 4
Descriptive Statistics and Reliabilities for Implicit Measures in Study 3

Measure	Block 1			Block 2			Split half	Attitude index
	<i>M</i>	<i>SD</i>	α	<i>M</i>	<i>SD</i>	α		
Facilitation to pos. words	-6.11	109.83	.90	28.28	105.03	.91	.62	—
Facilitation to neg. words	0.26	109.00	.89	44.03	102.34	.93	.52	—
Difference	-6.37	122.97	—	-15.75	103.79	—	.44	-10.56 (97.15)

First, we examined the impact of relationship dissolution on the association between automatic and deliberative evaluations of relationship (ex-)partners. Just as offering people money for accurately reporting their feelings likely minimized the motivation to view the relationship in an overly positively manner, dissolving a relationship should minimize the motivation to view the partner in an overly positive manner. Accordingly, paralleling the results of Study 3, we expected people's reports of their relationship satisfaction to align more closely with their automatic partner attitudes when their relationship was dissolved. We reasoned that if motivation to view or evaluate the relationship positively biases people away from the immediate feelings activated by their partners, removing that motivation should leave people to rely more heavily on those feelings.

Additionally, we sought to examine the role of opportunity factors in undermining such biased, motivated processing. As discussed previously, dual-process models of social cognition suggest that the influence of motivation to draw conclusions that are different from the propositions implied by one's automatic attitude depends on one's opportunity to engage in deliberative processing (Fazio, 1990). Given evidence that stress is known to play a critical role in diminishing relationship evaluations (Neff & Karney, 2017; Story & Bradbury, 2004), at least partly because it minimizes cognitive capacity (Buck & Neff, 2012; Neff & Karney, 2009), we examined the role of stress in moderating the association between automatic partner attitudes and relationship evaluations in the 14-day diary portion of Study 4. Specifically, we examined whether partners who had higher daily reports of stress, and thus had less opportunity to engage in deliberative processing, would report explicit judgments of relationship satisfaction that more closely aligned with their automatic partner evaluations on that day. Study 4 relied on a different implicit measure of automatic partner attitudes, helping to ensure that the effects previously described are robust and not an artifact of the PEPT.

Method

Participants. Participants in Study 4 were 348 individuals (174 couples) drawn from a broader study of close relationships. We recruited couples from [Amsterdam, the Netherlands and the surrounding areas] in a variety of ways including social networking, flyers, and so forth. Given broader goals of the project, participating couples were required to (a) have been involved in an exclusive romantic relationship for at least four months, (b) be at least 18 years of age, and (c) speak Dutch fluently (to ensure comprehension of questionnaires). On average, participants were 24.73 years of age ($SD = 6.44$) and had been committed to each other for an average of 3.76 years ($SD = 4.48$). Fifty percent of

these couples were living together and 7.2% were married at the start of the study.

Procedure. At baseline, couples were scheduled to attend an in-laboratory intake session. Upon their arrival, we introduced them to the study concept, and they provided their informed consent. Next, participants were photographed and then completed a measure of automatic partner attitudes as well as various questionnaires in separate cubicles. They then received verbal and written instructions regarding the diary portion of the study, which always started the day after the intake session. Participants were sent an e-mail every evening at 8:00 p.m. for the next 14 days. Each e-mail contained a link to the same automatic partner attitudes task administered through Inquisit Web. After this task, participants were automatically directed to Qualtrics.com for a short survey in which they reported information regarding what happened during that day. Participants were required to perform these daily assessments before midnight. Finally, at the end of the diary portion of the study, participants were contacted by e-mail three times, every four months (i.e., four, eight, and 12 months after the diary session), to take part in the follow-up assessments. As in the diary, each of these emails contained a link to Inquisit Web where participants completed the same automatic partner attitudes task before being directed to Qualtrics.com for a short survey. In these surveys, participants first indicated whether their relationship with their partner was still intact and then provided information regarding the past four months. Offering a unique opportunity to examine changes in the correspondence between automatic and deliberative evaluations before and after any relationship dissolutions that occurred, even participants who dissolved their relationships completed implicit and explicit assessments of the ex-partner/relationship. Participants received 50€ for taking part in the initial intake session and completing at least 80% of the daily diaries and two follow-up waves. Additionally, they were added to a raffle for a chance to win an iPad. At the end of the study, we thanked and debriefed participants. This study received ethics approval from The Scientific and Ethical Review Board at the VU University Amsterdam.

Measures

Automatic partner attitudes. Because of differences in priorities of the different labs involved in the collaboration, this study used a different procedure to assess automatic attitudes—a version of the affect misattribution procedure (AMP; Payne et al., 2005). The AMP is a widely used implicit measure (Nosek, Hawkins, & Frazier, 2011) that shows high reliabilities and effect sizes (Payne & Lundberg, 2014) as well as predictive validity (Cameron, Brown-Iannuzzi, & Payne, 2012). In the basic version of this task, participants briefly view an ambiguous pictograph (i.e., a Chinese

ideograph) and indicate as quickly as possible whether they find it more or less pleasant than average using predesignated keys (“E” = more, “I” = less). Prior to the pictograph, a prime is rapidly presented on the screen. There is evidence that people misattribute the affective feelings elicited by the prime to the Chinese character (Gawronski & Ye, 2015) and that such effects occur in the absence of any intentional rating of the primes (Gawronski & Ye, 2014; Payne et al., 2013).

In the version of the task used here, we used photos of each participant’s partner from four different perspectives (front face, profile, full body standing up, upper body sitting down) to activate feelings toward the partner. The task also contained primes of opposite sex attractive alternatives (four different faces selected by the participants out of 20 provided to them by the researchers prior to the task) and neutral stimuli (four exemplars; picture of a mug, picture of two suitcases, and two pictures of a gray square). The responses to neutral stimuli were used as a covariate to account for differences in people’s general RTs (Unkelbach et al., 2008) and the responses to strangers were not analyzed for our purposes. Consistent with Payne et al. (2005), each trial was presented as follows: a picture prime (75 ms), followed by a blank screen (100 ms), then by a Chinese pictograph randomly drawn from a list of 200 pictographs (100 ms), and finally replaced by a mask (i.e., scrambled image in black and white) until participants provided a response. Importantly, we explicitly told participants that there were no good or bad answers; rather, we instructed them to allow their spontaneous reactions to guide their decisions. At intake, participants first performed 10 practice trials that were not recorded in order to get accustomed to the task. Then, both at intake and in the follow-up waves, each picture prime was repeated six times in random order, for a total of 72 test trials. Because of time restrictions in the daily diary assessments, only the partner and neutral primes were presented (i.e., primes of attractive alternatives were discarded), resulting in 48 test trials in total.

To compute automatic partner attitudes scores, we followed standard recommendations for the AMP (Payne et al., 2005; Payne & Lundberg, 2014; Wentura & Degner, 2010). Automatic partner attitudes were reflected by the proportion of pleasant ratings following the partner primes, after discarding observations faster than 350 ms or slower than 3,000 ms because responses outside of this range may not reflect real spontaneous responses.³ Moreover, we eliminated, a priori, scores for which more than 50% of observations were discarded or for which only one response key was used. Finally, because some participants failed to complete their daily signals before midnight, we excluded observations provided after 1:00 a.m. in the diary portion of the study. Descriptive statistics and reliabilities for the AMP can be found in Table 5.

Explicit relationship evaluation at intake. At intake, we assessed participants’ explicit evaluations of their romantic partner with a five-item scale (e.g., “I feel a lot of positive affect towards my partner”; 1 = *not at all*, 7 = *completely*; $\alpha = .88$).

Daily diary reports of stress and explicit relationship satisfaction. On each day of diary, participants reported their daily levels of (a) stress with the single item: “Today, I feel stressed,” and (b) explicit relationship satisfaction with the item:

“Today, I feel satisfied with my relationship with my partner,” on a 7-point Likert scale (1 = *not at all*, 7 = *completely*).

Follow-up relationship status and explicit satisfaction. Finally, at each follow-up assessment, participants first indicated whether they were still in a romantic relationship with the partner with whom they started the study. Those still in a relationship self-reported their evaluation of their partner with the same five-item scale as the one used at intake ($\alpha = .93$). In contrast, those no longer in a relationship with that partner self-reported their evaluation of their ex-partner on a different scale, this one a 9-point scale (1 = *extremely negatively*, 9 = *extremely positively*).

Results

Given the nonindependent nature of our data (i.e., participants nested within dyads and crossed with time), we tested our hypotheses using the MIXED procedure in SPSS to estimate crossed multilevel models. Specifically, we employed models with random intercepts and fixed slopes (Kenny, Kashy, & Cook, 2006), within person-centered predictor variables (Bolger & Laurenceau, 2013), and a compound symmetry covariance structure. Because gender did not reliably moderate our effects, we treated dyads as indistinguishable and therefore report our results pooled across both males and females (Kenny et al., 2006).

Do people’s automatic and deliberative partner judgments align after relationship dissolution? To determine whether relationship dissolution moderated the association between automatic partner attitudes and deliberative judgments of relationship satisfaction, we examined whether the association between people’s automatic partner attitudes and deliberative judgments was moderated by relationship status in the follow-up assessments. To accomplish this, we centered automatic (ex-) partner attitudes within people, then standardized them across assessments and then examined whether their association with deliberative (ex-) partner evaluations gathered at intake and the three follow-up assessments was moderated by a categorical variable indicating whether participants’ relationship was intact (coded -0.5) or dissolved (coded $+0.5$) at each of these four time points. Because participants who dissolved their relationship during a follow-up wave ($n = 45$ valid observations from 29 participants) completed a different measure of deliberative relationship evaluation than the participants who remained together, we equalized the metric of the two variables (by dividing each score by the upper end of the range (i.e., 7 and 9) and then standardized (across people and time) the new variable that reflected deliberative evaluations for all participants).

Explicit ratings show less variance in intact ($s^2 = 0.32$) versus dissolved relationships ($s^2 = 3.89$). Consistent with predictions, we found that relationship dissolution significantly moderated the association between participants’ automatic partner attitudes and explicit partner evaluations (see Figure 2), $\beta = 0.59$, 95% CI [0.43, 0.75], $t(784) = 7.25$, $p < .001$. Simple slopes analyses demonstrated that automatic partner attitudes

³ Given these accepted cutoffs for the AMP were different from the cutoffs used for the PEPT in the other studies, we also formed an index that was based on the same cutoffs used for the PEPT (300 ms/2,000 ms). The two measures were highly correlated ($r = .99$), so we used the measure formed from the original cutoffs recommended for the AMP.

Table 5
Descriptive Statistics and Reliabilities for Implicit Measure in Study 4

Prime	N	M	SD	α	Test-Retest	
					Average <i>r</i>	Variance within persons
Partner primes						
Intake	341	77.45	21.00	.86	.51	.31
Diary	227.64 [187–266]	69.11 [63.34–76.14]	23.93 [21.16–26.44]	.86 [.82–.88]	.77	.42
Wave 1	237	68.29	26.09	.90	—	—
Wave 2	219	67.78	25.95	.89	—	—
Wave 3	207	65.71	26.08	.89	—	—
Neutral primes						
Intake	344	44.98	23.86	.85	.48	.34
Diary	228.14 [187–266]	41.48 [39.57–45.49]	23.94 [23.09–24.79]	.85 [.82–.87]	.71	.50
Wave 1	237	38.55	24.88	.86	—	—
Wave 2	219	40.09	24.46	.87	—	—
Wave 3	207	40.09	24.03	.84	—	—

Note. For the daily diary, all statistics were averaged across the 14 days (the range of these statistics is reported between brackets). Internal consistency was computed by using Cronbach’s alphas from three data parcels of the affect misattribution procedure (AMP). That is, the first (vs. second vs. third) parcel included the first (vs. second vs. third) item of each triplet of consecutive trials for each prime type (i.e., partner and neutral). We computed separate indices of test retest reliability for the 14 daily diary assessments (see *Diary* row) and for the four other longitudinal time points (i.e., Intake and Follow-up assessments; see *Intake* row). Test–retest reliability was estimated by using two different techniques. First, the average *r* corresponds to the average within-person coefficient correlation of two-by-two of all relevant time points. Second, the within-person variance was computed by subtracting the percentage of variance explained by the dyad as well as the percentage of error variance from the intraclass correlation that was obtained in a multilevel model with random effects only (Dyad × Person).

were unrelated to explicit partner evaluations for participants who remained in their relationships, $\beta = 0.02$, 95% CI [−0.01, 0.07], $t(647) = 1.23$, $p = .220$, and automatic ex-partner attitudes were significantly positively associated with explicit ratings of the relationship among partners in dissolved relationships, $\beta = 0.61$, 95% CI [0.46, 0.77], $t(771) = 7.78$, $p < .001$. This pattern of findings remained significant when controlling for people’s averaged automatic partner attitudes across the four time points, $\beta = 0.58$, 95% CI [0.42, 0.74], $t(786) = 7.13$, $p < .001$.

Do people’s daily automatic partner evaluations and deliberative relationship judgments become more aligned on days they report higher levels of stress? To determine whether daily stress moderated the association between daily automatic partner evaluations and daily deliberative judgments of relationship satisfaction, we centered and standardized automatic partner attitudes across days and then examined whether their association with daily deliberative partner evaluations was moderated by stress. In line with our predictions, stress significantly moderated the association between automatic partner attitudes and deliberative daily relation-

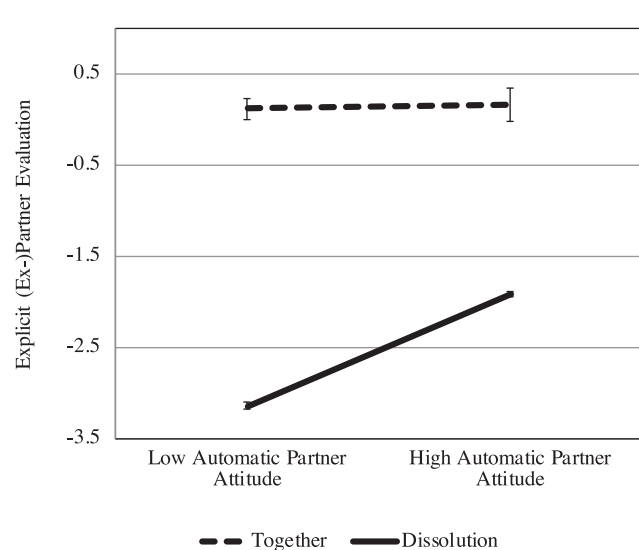


Figure 2. Relationship dissolution predicting the association between automatic partner attitudes and explicit relationship satisfaction in Study 4.

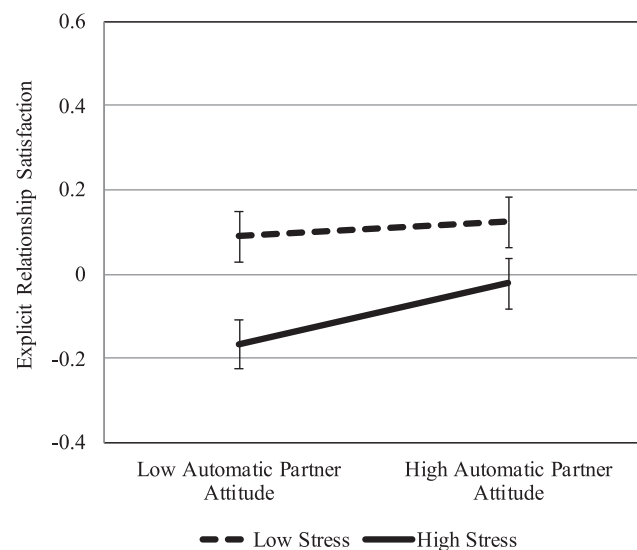


Figure 3. Stress predicting the association between automatic partner attitudes and explicit relationship satisfaction in Study 4.

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ship satisfaction (see Figure 3), $\beta = 0.03$, 95% CI [0.01, 0.05], $t(2890) = 2.49$, $p = .013$. Simple slopes analyses revealed that automatic attitudes were associated with self-reported relationship satisfaction on days in which participants experienced relatively high levels of stress (1 *SD* above their own mean level of stress throughout the diary), $\beta = 0.07$, 95% CI [0.04, 0.10], $t(474) = 4.47$, $p < .001$, but unassociated with self-reported relationship satisfaction on days in which participants experienced relatively low levels of stress (-1 *SD*), $\beta = 0.02$, 95% CI [-0.01, 0.05], $t(2801) = 1.07$, $p = .286$. Regarding the other set of simple effects, stress was negatively associated with explicit relationship evaluations on days in which individuals had more negative (-1 *SD*) automatic partner attitudes scores, $\beta = -.13$, 95% CI [-0.16, -0.10], $t(2867) = -7.94$, $p < .001$, but this effect was less pronounced, though still significant, on days in which individuals had more positive automatic partner attitudes ($+1$ *SD*), $\beta = -.07$, 95% CI [-0.10, -0.04], $t(2887) = -4.57$, $p < .001$.

Notably, these effects held when we controlled for participants' average automatic partner attitude scores and average reports of stress throughout the diary, $\beta = 0.03$, 95% CI [0.01, 0.05], $t(2891.11) = 2.51$, $p = .012$, suggesting that our effects were the result of people's daily fluctuations and not of their average tendencies. Furthermore, these effects held when we controlled for automatic partner attitudes, deliberative relationship satisfaction, and levels of stress reported on the previous day in time-lagged analyses $\beta = 0.04$, 95% CI [0.01, 0.07], $t(2187.30) = 3.05$, $p = .002$, suggesting that daily effects of stress influenced deliberative relationship judgments independently of the previous day's events.

Discussion

Consistent with predictions and conceptually replicating the effect from Study 3, Study 4 provided additional evidence that motivation to engage in deliberative processing may determine whether people use their automatic partner attitudes when making deliberative relationship judgments; people who dissolved their relationships over the course of the study, and thus likely had lower motivation to evaluate their partner in a positive light, reported deliberative judgments of their dissolved relationship and partner that were more closely aligned with their automatic attitudes toward those partners. Two notable limitations of this study are that we observed a relatively small number of break-ups in our sample and the scale used to assess relationship satisfaction after break-up was slightly different than the one used prior to break-up. Nevertheless, the fact that the finding is consistent with other research examining the correspondence between automatic and deliberative evaluations after relationship dissolution (Banse et al., 2013; Imhoff & Banse, 2011) offers some confidence that this effect is reliable.

Additionally, Study 4 provided novel support for the idea that stress, which is known to limit cognitive capacity (Hofmann et al., 2012), limits people's ability to engage in motivated evaluation processes in their relationships. Specifically, people self-reported explicit relationship satisfaction that was unrelated to their automatic partner attitudes on days that they experienced relatively less stress than usual but reported satisfaction that was more aligned with their automatic partner attitudes on days when they experienced more stress than usual.

Study 5

In Study 5, we attempted to extend our findings regarding the role of stress in moderating the association between automatic and deliberative relationship evaluations in a study of newlywed couples in two ways. First, we attempted to extend the finding that higher levels of stress lead to greater correspondence between automatic and deliberative evaluations at the daily level by examining whether people who experience more stressors over time may report deliberative evaluations that align better with their automatic partner attitudes. As noted earlier, any effects of stress on the association between automatic partner attitudes, such as the daily effects demonstrated in Study 4, may accumulate over time. That is, if people do indeed rely more on their automatic partner attitudes any time they evaluate their relationships under stress, then people who experience more stressful events over time should more frequently evaluate their relationships in ways that correspond to their automatic partner attitudes, leading to global evaluations of the relationship that align more closely with automatic partner attitudes.

Second, we took several steps to strengthen support for our theoretical perspective versus other interpretations of our findings. One way was to help rule out several alternative interpretations regarding why stress increases people's reliance on their automatic partner attitudes. For example, increased stress has been shown to lead to a more deliberative mindset related to the stressor itself, leading people to focus on both the positive and negative aspects of the situation in which the stressor occurs (Brandstätter & Schüler, 2013). Accordingly, any stressors that occur within the relationship may lead people to be more accurate about their automatic partner attitudes simply because they attend to both their positive and negative feelings associated with the relationship. Indeed, people who are faced with major relationship decisions in their relationships often prioritize accurate perceptions of their partner over positive illusions (Gagné & Lydon, 2004; Fletcher, Simpson, & Boyes, 2006). Although this interpretation does not challenge the idea that stress moderates the association between automatic partner attitudes and deliberative judgments, it does challenge our theoretical perspective. Whereas our theoretical framework suggests stressors experienced outside the relationship increase the extent to which relationship judgments align with automatic partner attitudes because it minimizes cognitive capacity available for deliberation to be focused on the relationship itself (see Neff & Karney, 2009, 2017), this alternative suggests stressors inside the relationship increase the extent to which relationship judgments align with automatic partner attitudes because they motivate people toward accurate perceptions of their relationships. Unfortunately, Study 4 did not distinguish between relationship stress and stress that occurred outside the context of the relationship, prohibiting us from addressing this issue in that Study. Study 5, in contrast, utilized a measure of stress that allowed us to isolate stress caused by factors outside of the relationship, which allowed us to limit our analysis to stressors that occurred outside the relationship. We reasoned that stress in a particular domain (e.g., work-related stress) may increase motivation to accurately evaluate events in that domain, but not the relationship. For example, stressors at work likely enhance people's motives to be accurate regarding work related events, rather than the relationship, which should limit their cognitive capacity available for deliberation

about relationship events and force them to rely on their automatic attitudes at times when they reevaluate their relationships.

Another alternative interpretation of why stress increases people's reliance on their automatic partner attitudes is that stress leads to more negative reports of relationship satisfaction because it causes people to view all parts of their lives more negatively, which coincidentally brings self-reported satisfaction more in line with people's more negative partner attitudes. Although such an explanation may seem unlikely, because it assumes that stress disproportionately colors perceptions among participants with more negative relative to positive automatic attitudes, we addressed it anyway by controlling two variables likely to capture such negative sentiments and their interaction with automatic partner attitudes—depressive symptoms and the perceived severity of problems with the relationship. If any stress interacts with automatic partner attitudes solely because stress leads everything, including the relationship, to appear more negative, particularly among people with more negative automatic partner attitudes, controlling for negativity in people's perceptions of the severity of their relationship problems and negativity in their perceptions generally and the extent to which such perceptions interact with partner attitudes to predict self-reported satisfaction should eliminate any effects of stress.

A final alternative interpretation of why stress increases people's reliance on their automatic partner attitudes is that stress reduces the strength of people's relationship enhancement motives. To help rule out this possibility, we identified and controlled three measures reflective of relationship enhancing motives and the extent to which they interacted with automatic partner attitudes—(a) general levels of commitment, (b) specific motivation to maintain the relationship, and (c) motivations to enhance the quality of the relationship. If stress interacts with automatic partner attitudes because it reduces relationship enhancement motives, controlling such motivations and their interactions should eliminate any interactive effects involving stress.

A second way we attempted to strengthen support for our theoretical perspective was to provide evidence that such relationship enhancing motives are in fact driving people's tendencies to override their automatic partner attitudes when they are able to engage in deliberative processing about their relationships. Indeed, people can fluctuate in their motivations, from preferring positive evaluations to preferring accuracy (Fletcher et al., 2006; Gagné & Lydon, 2004). Moreover, regardless of what motivations are driving people's perceptions, people may also be motivated to present the relationship in a socially desirable way. Given, that explicit and implicit evaluations are less likely to align when people are evaluating socially sensitive topics (Greenwald, Poehlman, Uhlmann, & Banaji, 2009), the effects that emerged in Studies 1–4 may have reflected social desirability concerns. Though the possibility that social desirability concerns drive people's tendencies to override their automatic partner attitudes is generally consistent with the theoretical framework that stress overrides motivational reporting, it is not entirely consistent with our theoretical framework that people who lack the capacity to engage in motivated reasoning use their automatic partner attitudes when forming judgments of their relationships. Finding that people primarily override their automatic feelings when making deliberative judgments for the purpose of maintaining socially desirable responses could suggest stress simply limits people's ability to manage their impressions to

others. Finding that the association between automatic partner attitudes and deliberative judgments relationship enhancing motives rather than social desirability motives, in contrast, would offer stronger support for our perspective that motivations may obscure people's insights into the content of their automatic attitudes.

We addressed this issue in three ways. First, we tested whether social desirability concerns accounted for any interactive association involving stress and automatic partner attitudes. Second, we tested whether social desirability concerns moderated the interactive association involving stress, automatic partner attitudes, and self-reported relationship satisfaction. Third, we directly tested whether the three measures reflective of relationship enhancing motives described above (general levels of commitment, specific motivation to maintain relationship, and motivations to enhance the quality of the relationship by solving relationship problems) moderate the interactive association between stress, automatic partner attitudes, and self-reported relationship satisfaction. Our theoretical framework, derived specifically from the MODE model, suggests that such relationship enhancing motivations lead people to override their automatic attitudes when deliberately evaluating their relationships, unless stress occurring outside the relationship minimizes their cognitive capacity available for such deliberation.⁴

Method

Participants. Participants in Study 5 were drawn from a sample of 240 individuals (120 couples) in a broader study of newlywed couples. We recruited participants through Facebook advertising, community newspapers and bridal shops in [Tallahassee, Florida and the surrounding areas], and letters sent to couples who had recently applied for marriage licenses in the area. Participants were eligible if they (a) had been married for less than three months, (b) were at least 18 years of age, and (c) spoke English (to ensure comprehension of questionnaires). At the beginning of the study, spouses were 31.01 years of age ($SD = 9.04$) and couples had been together for an average of 3.61 years ($SD = 2.63$) prior to marriage.

Procedure. At baseline, spouses completed a packet of surveys online through Qualtrics.com that included measures of explicit relationship satisfaction and a measure aimed at capturing the frequency of stressful events and their impact on participants' lives. At a subsequent lab session, all husbands and wives completed the PEPT.

Approximately one and two years after their initial lab session (for a total of three assessments), participants were recontacted and sent a packet containing the same surveys they had completed at their initial session. We also invited couples to attend a second and third laboratory session during which we assessed participants' automatic partner attitudes using the (photos) version of PEPT used in Study 2a. Couples received \$100 (U.S.) each time they completed the surveys and corresponding lab sessions. This study

⁴ Several of the analyses aimed at ruling out alternatives were developed in response to comments from reviewers. We preregistered these analyses at <https://osf.io/7tj8s>.

received ethics approval from the Institutional Review Board at [Florida State University].

Measures.

Automatic partner attitudes. As in Study 2a, we captured automatic partner evaluations using the PEPT with spouses' photos serving as primes and scored the measure the same way as in Studies 2a–2c. We took and used new photos at each lab session. Descriptive statistics and reliabilities for the PEPT at each time point can be found in Table 6.

Explicit relationship satisfaction. To be most comprehensive, we used all measures of global relationship evaluation contained in the survey, which was a total of three. The first measure was a version of the Semantic Differential (Osgood, Suci, & Tannenbaum, 1957), which required spouses to rate their perceptions of their marriage on 7-point scales between 15 pairs of opposing adjectives (e.g., bad–good, dissatisfied–satisfied, unpleasant–pleasant). This version of the Semantic Differential thus yields scores from 15 to 105, with higher scores reflecting higher levels of marital satisfaction. Consistent with the highly positive predicted partner feelings observed in Studies 2 and 3, participants reported satisfaction scores on this scale at baseline that were quite high on average ($M = 95.65$, $SD = 9.94$).

The second measure was the Quality Marriage Index (Norton, 1983). This scale required spouses to indicate their level of agreement with five items that describe the general quality of their marriage (e.g., "We have a good marriage") using a 7-point scale (1 = *very strong disagreement*, 7 = *very strong agreement*), and to rate their overall marital quality on a 10-point scale (1 = *very unhappy*, 10 = *perfectly happy*). Items were summed, so scores could range from 6 to 45, with higher scores reflecting higher levels of marital satisfaction. Again, participants reported satisfaction scores on this scale that were quite high on average at baseline ($M = 42.43$, $SD = 4.27$).

The third measure of explicit relationship satisfaction was the Kansas Marital Satisfaction Scale (Schumm et al., 1986). This three-item measure uses a 7-point scale (1 = *very unsatisfied*, 7 = *very satisfied*) to assess spouses' global evaluations of their relationship by requiring them to indicate their agreement with the following items: (a) "How satisfied are you with your partner?," (b) "How satisfied are you with your relationship with your partner?," and (c) "How satisfied are you with your

marriage?" The items were summed, and higher scores reflected higher levels of marital satisfaction. Consistent with their responses on the SMD and QMI, participants reported satisfaction scores on this scale that were quite high on average at baseline ($M = 19.25$, $SD = 2.14$).

Reliability of each scale was high (all α s $\geq .90$ across all assessments). Given strong conceptual and empirical overlap (r s $\geq .78$ at all assessments), as well as the similarly high correlations observed in other research (see Funk & Rogge, 2007), we standardized each measure and used the standardized average of the three in all analyses.

Stress. We used the Stressful Life Events Scale (Sarason, Johnson, & Siegel, 1978) to capture participants' stressful experiences and the impact of those experiences over the course of the study. This scale requires that participants respond to a list of potential stressful life events by indicating whether they experienced each event in the past 12 months and the impact of each event if it occurred using a 7-point scale ($-3 =$ *very negative impact*, $+3 =$ *very positive impact*). The list of events spans a variety of domains including one's relationship (e.g., "Major change in quality of relationship with spouse"), occupation or education (e.g., "Got fired or laid off from work"), social relationships (e.g., "Death of a close friend or family member"), finances (e.g., "Fell behind in paying bills"), health (e.g., "Serious injury or accident"), home and community (e.g., "Moved into a new home"), and legal standing (e.g., "Arrested"). To calculate participants' stress scores, we summed the ratings of impact of only the events that participants rated as negatively impactful (-3 , -2 , -1 ; see Neff & Karney, 2004). Following these same procedures, we also created two subscales by summing the 19 items that referred to stressful experiences within the relationship (i.e., relationship stress) and the remaining items that referred to stressful experiences outside of the relationship (i.e., nonrelationship stress). On average, spouses reported 0.89 ($SD = 1.54$) stressful relationship events and 5.16 ($SD = 6.97$) stressful nonrelationship events over the duration of the study.

Depressive symptoms. As a measure of depression, we used the revised Center for Epidemiologic Studies Depression Scale (CESD-R; Van Dam & Earleywine, 2011). This 20-item scale required that spouses rate their experience of depressive thoughts and behaviors (e.g., "I felt lonely," "I had crying spells") over the

Table 6
Descriptive Statistics and Reliabilities for Implicit Measures in Study 5

Measure	Block 1			Block 2			Split half	Attitude index
	<i>M</i>	<i>SD</i>	α	<i>M</i>	<i>SD</i>	α		
Time 1 ($N = 226$)								
Facilitation to pos. words	44.14	131.75	.73	121.32	138.70	.69	.72	—
Facilitation to neg. words	28.27	142.52	.68	142.52	150.10	.73	.72	—
Difference	14.65	127.60	—	-21.20	108.54	—	.35	-2.91 (97.32)
Time 2 ($N = 190$)								
Facilitation to pos. words	-8.05	90.69	.70	57.06	93.04	.74	.52	—
Facilitation to neg. words	-0.41	111.30	.69	70.52	104.97	.70	.59	—
Difference	-7.64	118.57	—	-13.46	91.36	—	.44	-10.55 (89.20)
Time 3 ($N = 140$)								
Facilitation to pos. words	-29.02	87.11	.84	25.53	90.63	.91	.57	—
Facilitation to neg. words	-25.91	109.61	.91	32.35	105.21	.86	.62	—
Difference	-3.11	104.47	—	-6.82	102.02	—	.36	-4.97 (85.01)

past week using a 4-point scale (1 = *Rarely or none of the time*, 4 = *Most or all of the time*). Items were summed, so scores ranged from 20 to 80, with higher scores reflecting higher levels of depression. On average, spouses reported low levels of depression ($M = 30.64$, $SD = 9.53$).

Severity of relationship problems. We used a version of the Inventory of Marital Problems (IMP; Geiss & O'Leary, 1981) as a measure of relationship problems. This scale required that spouses rate the extent to which 19 common areas of relationship conflict (e.g., communication, money management) are problems in their own relationship using a 11-point scale (1 = *not a problem*, 11 = *major problem*). Items were summed so that scores ranged from 11 to 209, with higher scores reflecting more problematic relationships and more motivation to repair relationship problems. On average, spouses reported relatively few problems in their relationships ($M = 56.09$, $SD = 26.07$).

Relationship enhancing motives. We assessed relationship enhancing motives with three measures. All three measures were conceptually reflective of motives to enhance the relationship, yet empirically distinct, offering an opportunity to provide broad evidence of the role of relationship enhancing motives in any interactive association involving stress and automatic partner attitudes. The first was the "commitment" subscale of the Investment Model Scale (Rusbult, Martz, & Agnew, 1998). This subscale asks spouses to rate their agreement with seven items concerning their commitment to their relationship (e.g., "I want our relationship to last forever") using a 9-point scale (1 = *Do not at all agree*, 9 = *agree completely*). Again, items were summed, so that scores ranged from 9 to 63, with higher scores reflecting higher motivations for the relationship to continue. Spouses reported relatively high levels of commitment on average ($M = 49.36$, $SD = 10.28$) over the duration of the study. The second was the "relationship agenda" subscale of the Commitment Inventory (Stanley & Markman, 1992). This subscale requires spouses to rate their agreement with six items concerning their commitment to the future of their relationship (e.g., "I want this relationship to stay strong no matter what tough times we may encounter") using a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*). Items were summed, so scores ranged from 7 to 42, with higher scores reflecting higher motivations for the relationship to continue. Spouses reported high levels of commitment on average ($M = 38.92$, $SD = 5.36$) over the duration of the study. The third was self-reported motivation to resolve problems in the 19 relationship domains described above. Participants reported the extent to which they were motivated to

fix those problems on an 11-point scale (1 = *not at all willing*, 11 = *completely willing*). On average, partners were highly motivated to solve the problems they had ($M = 166.07$, $SD = 36.97$) over the duration of the study.

Social desirability. Finally, we examined potential motivation outside of one's motivation to view the relationship positively, specifically social desirability. To measure social desirability, we used Reynolds's (1982) revised Marlowe-Crown Social Desirability Scale (Form C). This 13-item scale requires spouses to respond to True-False questions concerning their tendency to want to behave in socially desirable ways (e.g., "No matter who I'm talking to, I'm always a good listener"). Items were summed, so scores ranged from 0 to 13, with higher scores reflecting higher motivations to behave in socially desirable ways. Spouses reported moderate levels of social desirability on average ($M = 6.18$, $SD = 2.85$) over the duration of the study.

Results

Of the 240 participants in the broader study, 236 spouses at Time 1, 193 spouses at Time 2, and 148 spouses at Time 3 completed (a) the PEPT, (b) the measures of explicit relationship satisfaction, and (c) the measure of stressful life events. Prior to our analyses, we excluded observations from participants who did not adequately complete the orientation block of the PEPT that provided the RTs to words after neutral primes (one husband and two wives at Time 3) and participants who made errors on 20% or more of the critical trials (two husbands and four wives at Time 1, two husbands and one wife at Time 2, and two husbands and two wives at Time 3). From each time point, we excluded, a priori, additional participants who had automatic partner attitude scores that were three standard deviations beyond the sample mean (four husbands at Time 1 and one wife at Time 3). Thus, our final analyses consisted of 556 observations.

Correlations between variables are presented in Table 7. In contrast to the particularly high deliberative evaluations reported on the satisfaction scores (see Measures section), the PEPT revealed, once again, that participants' partners facilitated the categorization of positive and negative words to the same extent at baseline, $t(225) = -0.45$, $p = .654$, suggesting again that partners activated positive and negative feelings to a similar extent. Further, both the deliberative judgments of relationship satisfaction, $\beta = -0.29$, 95% CI [-0.39, -0.19], $t(316) = -6.324$, $p < .001$, and automatic partner attitudes, $\beta = -0.10$,

Table 7
Correlations Among Variables in Study 5

Variable	1	2	3	4	5	6	7	8	9
1. Explicit satisfaction aggregate	—	.08	-.07	-.68**	-.37**	.16**	.53**	.27**	.09*
2. Automatic partner attitudes		—	.01	-.06	-.04	-.02	.10*	.04	-.00
3. Nonrelationship stress			—	.04	.16**	.05	-.11*	-.00	-.03
4. Severity of marital problems				—	.40**	-.21**	-.37**	-.23**	-.15*
5. Depressive symptoms					—	-.11**	-.29**	-.18**	-.24**
6. Motivation to solve marital problems						—	.22**	.13**	-.14**
7. Commitment Inventory – Relationship Agenda subscale							—	.32**	.01
8. Investment Model Scale – Commitment subscale								—	.07
9. Social desirability									—

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

95% CI [-0.18, -0.02], $t(213) = -2.64$, $p = .009$, became more negative over time.

To test the possibility that automatic partner evaluations and explicit relationship judgments better correspond when spouses experience higher levels of nonrelationship stress, we estimated a two-level model in which we regressed participants' repeated reports of relationship satisfaction onto their repeated observations of automatic partner attitudes, repeated reports of the impact of their nonrelationship stress, and an Automatic Partner Attitudes \times Nonrelationship Stress interaction. Measures were nested within individuals, and dyad members were estimated separately and simultaneously with separate intercepts. According to log-likelihood model deviance tests, all estimates, with the exception of the effect of nonrelationship stress, $\chi^2(1) = 7.12$, $p = .008$, did not significantly differ across husbands and wives and thus, were pooled across participants' gender.

Results are presented in Table 8, Model 1. Consistent with predictions, the sum of the impact of stressful experiences outside of the relationship spouses encountered over the prior 12 months moderated the association between their automatic partner attitudes and their explicit reports of relationship satisfaction; see Figure 4. As reported in the online supplemental materials, the interactive association involving stress, automatic partner attitudes, and self-reported relationship satisfaction was also significant when we used a measure of stress that included relationship stressors.⁵

Simple effects tests of the association between automatic partner attitudes at high and low levels of stress (± 1 SD) revealed that, for spouses experiencing relatively high levels of stress, automatic partner attitudes were significantly positively associated with explicit relationship satisfaction, $\beta = 0.25$, 95% CI [0.12, 0.38], $t(217) = 3.95$, $p < .001$. In contrast, for spouses experiencing relatively low levels of stress, automatic partner attitudes were not significantly associated with explicit judgments, $\beta = -0.05$, 95% CI [-0.19, 0.09], $t(217) = -0.68$, $p = .499$. In other words, as predicted, stress appears to limit people's ability to override their automatic partner attitudes when deliberately evaluating their relationship.

Although the simple effects described in the prior paragraph are most relevant to our theoretical arguments, the other set of simple effects (i.e., the association between stress and deliberative judgments of relationship satisfaction for people at high and low levels of automatic partner attitudes) offers information that is relevant to understanding the role of stress in relationships. As mentioned above, stress was differentially related to relationship satisfaction across husbands and wives, $\chi^2(1) = 7.12$, $p = .008$. Wives demonstrated a pattern consistent with the main effects of stress typically observed in other research (see Neff & Karney, 2017) and in Study 4—stress was significantly negatively associated with explicit relationship satisfaction for wives with more negative automatic partner attitudes, $\beta = -0.41$, 95% CI [-0.68, -0.14], $t(217) = -3.03$, $p = .003$ and marginally associated with explicit relationship satisfaction for wives with more positive automatic partner attitudes, $\beta = -0.11$, 95% CI [-0.22, 0.00], $t(217) = -1.93$, $p = .055$. For husbands, however, stress was significantly positively associated with explicit relationship satisfaction among husbands with positive automatic attitudes, $\beta = 0.24$, 95% CI [0.06, 0.43], $t(217) = 2.68$, $p = .008$, but unassociated with deliberative judgments among husbands with more negative automatic partner attitudes, $\beta = -0.06$, 95% CI [-0.16, 0.04],

$t(217) = -1.19$, $p = .237$. These simple effects are consistent with evidence that women suffer more severely from stress (Matud, 2004), and they also suggest that, for husbands at least, frequent stress may sometimes benefit relationships when they force people to rely on automatic sentiments that are positive. Given that we did not predict these gender differences, however, they should be interpreted with caution until they can be replicated in future research.

Ruling out alternative explanations. Although our findings are generally consistent with our theoretical perspective, they are still open to alternative interpretations. To strengthen our confidence in our theoretical perspective, we conducted several follow-up analyses that aimed at minimizing the plausibility of several alternative explanations.

Does stress influence deliberative evaluations by increasing negative evaluative sentiment? First, we attempted to reduce the possibility that stress led to greater correspondence between automatic and deliberative evaluations because it caused people to view all parts of their lives more negatively. In other words, it may be that deliberative and automatic relationship evaluations were more closely aligned for people with high levels of stress in our study not because stress limited their cognitive capacity for motivated reasoning but because stress led people with more negative attitudes to evaluate everything, not just their relationships, more negatively. To address this concern, we retested our original model controlling for factors indicative of negative relationship sentiments and overall negative evaluative sentiments and the extent to which these factors interacted with automatic partner attitudes. First, we controlled for participants' reports of depressive symptoms, which have been associated with a tendency to evaluate stimuli more negatively (Gilboa-Schechtman, Presburger, Marom, & Hermesh, 2005). As can be seen in Table 8, Model 2, the interaction between nonrelationship stress and automatic partner attitudes was robust to the negative effects of depressive symptoms and their interaction with automatic partner attitudes. Second, we controlled people's reports of the severity of their relationship problems based on the idea that any increases in overall negative sentiment caused by stress should be reflected in perceptions of more severe relationship problems. The results for this analysis can be found in Table 8, Model 3. Consistent with our initial theorizing, the interactive effect of stress and automatic partner attitudes on self-reported relationship satisfaction was robust to the interactive effect of the severity of relationship problems.

Does stress decrease motivation to evaluate the relationship positively? Another alternative explanation for the finding that stress increases the association between automatic partner attitudes and deliberative relationship judgments is that stress decreases people's motivations to override their automatic inclinations toward their partners. In other words, rather than limiting cognitive ability, stress may increase the association between automatic partner attitudes and self-reported relationship satisfaction because stress decreases rela-

⁵ We also examined the effect of the sum of spouses' stressful experiences over the duration of the study. The interaction between the sum of stressful non-relationship experiences and automatic partner attitudes did not significantly predict explicit relationship satisfaction, though the effect was marginal, $\beta = 0.06$, 95% CI [0.03, 0.09], $t(306) = 1.78$, $p = .076$. Full effects for this analysis and others examining the impact and sum of the full SLE and the relationship stress subscale of the SLE can be found in the online supplemental materials.

Table 8
Testing for Alternative Explanations for the Effect of Stress on the Association Between Automatic Partner Attitudes and Explicit Relationship Satisfaction

Measure	Model 1 Base model		Model 2 Ctrl depress.		Model 3 Ctrl problems		Model 4 Ctrl MSP		Model 5 Ctrl RA com		Model 6 Ctrl IMS com		Model 7 Ctrl SD	
	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE
Intercept														
Husbands	-0.08	0.09	-0.07	0.08	-0.04 _p	0.05	-0.07	0.09	-0.05	0.07	-0.04	0.08	-0.06	0.08
Wives	-0.07	0.09	-0.05	0.08	-0.04 _p	0.05	-0.08	0.09	-0.08	0.08	-0.05	0.09	-0.07	0.09
Time														
Husbands	-0.30 _p ***	0.06	-0.24 _p ***	0.06	-0.14 _p ***	0.05	-0.28 _p ***	0.06	-0.20 _p ***	0.05	-0.08 _p	0.08	-0.29 _p ***	0.06
Wives	-0.30 _p ***	0.06	-0.24 _p ***	0.06	-0.14 _p ***	0.05	-0.28 _p ***	0.06	-0.20 _p ***	0.05	-0.08 _p	0.08	-0.29 _p ***	0.06
Baseline RT to positive words														
Husbands	-0.17 _p	0.09	-0.17 _p †	0.09	-0.13 _p †	0.08	-0.15 _p	0.10	-0.12 _p	0.08	-0.16 _p †	0.09	-0.18 _p *	0.09
Wives	-0.17 _p	0.09	-0.17 _p †	0.09	-0.13 _p †	0.08	-0.15 _p	0.10	-0.12 _p	0.08	-0.16 _p †	0.09	-0.18 _p *	0.09
Baseline RT to negative words														
Husbands	0.20 _p *	0.10	0.20 _p *	0.09	0.14 _p †	0.08	0.15 _p	0.10	0.15 _p	0.09	0.18 _p *	0.09	0.21 _p †	0.11
Wives	0.20 _p *	0.10	0.20 _p *	0.09	0.14 _p †	0.08	0.15 _p	0.10	0.15 _p	0.09	0.18 _p *	0.09	0.21 _p †	0.11
Automatic partner attitudes (APA)														
Husbands	0.10 _p	0.05	0.08 _p	0.05	0.08 _p †	0.04	0.09 _p †	0.05	0.05 _p	0.05	0.10 _p †	0.05	0.11 _p *	0.05
Wives	0.10 _p	0.05	0.08 _p	0.05	0.08 _p †	0.04	0.09 _p †	0.05	0.05 _p	0.05	0.10 _p †	0.05	0.11 _p *	0.05
Impact of nonrelationship stress														
Husbands	0.09	0.06	0.12 _p †	0.07	-0.05 _p	0.04	0.10 _p †	0.06	0.10 _p †	0.06	0.10 _p †	0.05	0.10 _p †	0.06
Wives	-0.26**	0.09	-0.19*	0.09	-0.05 _p	0.04	-0.24**	0.08	-0.18 _p †	0.10	-0.23**	0.09	-0.27*	0.11
APA × Stress														
Husbands	0.15_p**	0.04	0.12_p**	0.04	0.06_p*	0.03	0.15_p***	0.04	0.09_p*	0.04	0.13_p**	0.04	0.16_p**	0.05
Wives	0.15_p**	0.04	0.12_p**	0.04	0.06_p*	0.03	0.15_p***	0.04	0.09_p*	0.04	0.13_p**	0.04	0.16_p**	0.05
Depressive symptoms														
Husbands	—	—	-0.25 _p ***	0.05	—	—	—	—	—	—	—	—	—	—
Wives	—	—	-0.25 _p ***	0.05	—	—	—	—	—	—	—	—	—	—
APA × Depressive Symptoms														
Husbands	—	—	0.06 _p	0.04	—	—	—	—	—	—	—	—	—	—
Wives	—	—	0.06 _p	0.04	—	—	—	—	—	—	—	—	—	—
Problems														
Husbands	—	—	—	—	-0.61 _p ***	0.05	—	—	—	—	—	—	—	—
Wives	—	—	—	—	-0.61 _p ***	0.05	—	—	—	—	—	—	—	—
APA × Problems														
Husbands	—	—	—	—	0.07 _p *	0.03	—	—	—	—	—	—	—	—
Wives	—	—	—	—	0.07 _p *	0.03	—	—	—	—	—	—	—	—
Motivation to solve problems (MSP)														
Husbands	—	—	—	—	—	—	0.14 _p **	0.05	—	—	—	—	—	—
Wives	—	—	—	—	—	—	0.14 _p **	0.05	—	—	—	—	—	—
APA × MSP														
Husbands	—	—	—	—	—	—	-0.09 _p *	0.03	—	—	—	—	—	—
Wives	—	—	—	—	—	—	-0.09 _p *	0.03	—	—	—	—	—	—
Relationship agenda (RA) commitment														
Husbands	—	—	—	—	—	—	—	—	0.42 _p ***	0.09	—	—	—	—
Wives	—	—	—	—	—	—	—	—	0.42 _p ***	0.09	—	—	—	—
APA × RA Commitment														
Husbands	—	—	—	—	—	—	—	—	-0.01 _p	0.06	—	—	—	—
Wives	—	—	—	—	—	—	—	—	-0.01 _p	0.06	—	—	—	—
Investment model commit (IMS)														
Husbands	—	—	—	—	—	—	—	—	—	—	0.23 _p **	0.07	—	—
Wives	—	—	—	—	—	—	—	—	—	—	0.23 _p **	0.07	—	—
APA × IMS Commitment														
Husbands	—	—	—	—	—	—	—	—	—	—	-0.04 _p	0.05	—	—
Wives	—	—	—	—	—	—	—	—	—	—	0.04 _p	0.05	—	—
Social Desirability														
Husbands	—	—	—	—	—	—	—	—	—	—	—	—	0.01 _p	0.05
Wives	—	—	—	—	—	—	—	—	—	—	—	—	0.01 _p	0.05
APA × Social Desirability														
Husbands	—	—	—	—	—	—	—	—	—	—	—	—	-0.03 _p	0.04
Wives	—	—	—	—	—	—	—	—	—	—	—	—	-0.03 _p	0.04

Note. SD = Social Desirability. _p indicates that effect was pooled because it did not differ between husbands and wives. Bolded effects indicate the key Automatic Partner Attitude × Stress interaction in each model.
 † $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

relationship enhancing motivations. We addressed this possibility by retesting our original model controlling for three indexes of relationship enhancing motivations. Specifically, we ran three separate analyses in which we controlled for (a) motivations to solve relationship problems using the IMP (Geiss & O’Leary, 1981), (b) the Relation-

ship Agenda subscale of the Commitment Inventory (Stanley & Markman, 1992), and (c) the Investment Model Commitment subscale (Rusbult et al., 1998) as well as each of their interactions with automatic partner attitudes. (See Table 7 for correlations between motivation variables). Results for these three analyses can be found in

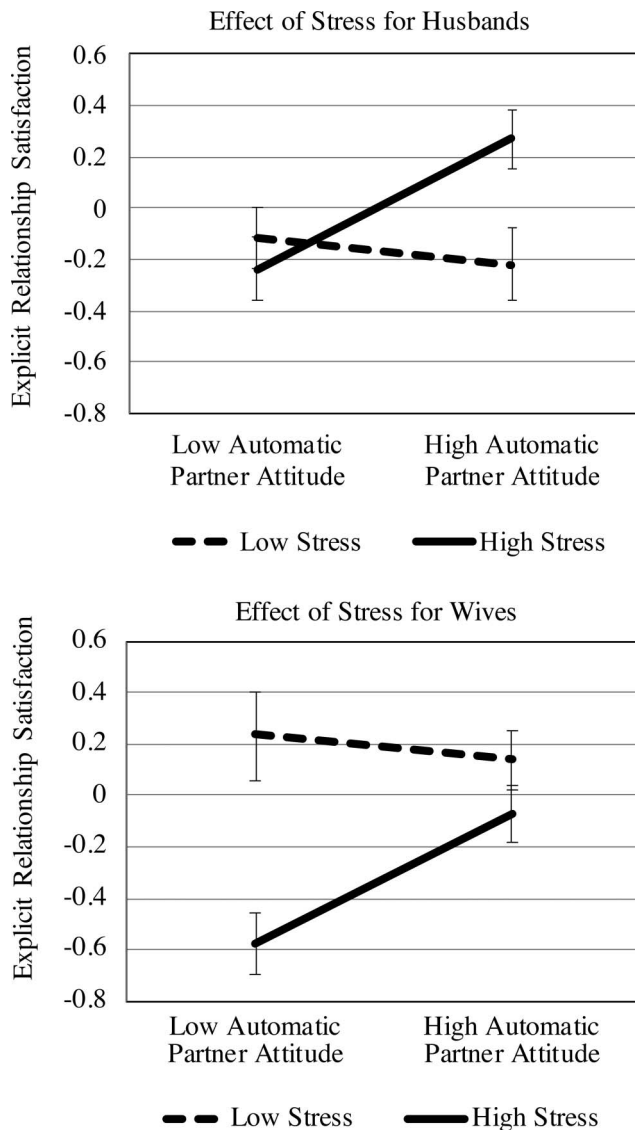


Figure 4. Stress predicting the association between automatic partner attitudes and explicit relationship satisfaction in Study 5. Although the key effect was the same across gender, we plotted these data separately because different effects of stress for husbands and wives resulted in different predicted values.

Table 8, Models 4, 5, and 6. Consistent with our initial theorizing, the interactive effect of nonrelationship stress and automatic partner attitudes was robust controlling for three distinct variables that captured partners' relationship enhancement motivations, further supporting the idea that stress may increase the correspondence between automatic and deliberative relationship evaluations by limiting cognitive capacity rather than decreasing motivation for the relationship to continue.

Are social desirability concerns the primary motivation driving inflated deliberative reports? We also attempted to minimize the possibility that social desirability, rather than relationship enhancing motives, drove self-reported relationship satisfaction away from automatic partner attitudes. Given that people

typically report deliberative evaluations that diverge from their automatic partner evaluations when they are evaluating socially sensitive topics (Greenwald et al., 2009), it is possible that stress limited participants' ability to override self-presentational motives, not relationship enhancing motives. To examine this possibility, we tested our original model controlling for social desirability and the interaction between social desirability and automatic partner attitudes. As can be seen in Table 8, Model 6, the key effect of the Automatic Partner Attitude \times Nonrelationship Stress interaction remained significant even when controlling for effects of social desirability. This result provides some evidence for the idea that relationship motivations, rather than social desirability concerns, are mainly responsible for any lack of association between automatic and more deliberative partner evaluations, although the next set of analyses addressed this issue more directly.

Examining the three-way interaction between automatic partner attitudes, stress, and relationship motivation. Our final set of analyses examined the three-way interaction between automatic partner attitudes, relationship motivation, and stress that can be predicted based on the MODE model. The perspective guiding our research is that stress overrides people's ability to think in ways that fulfill their goals to enhance their relationship. As such, we expected the interactive association between stress and automatic partner attitudes to be further moderated by relationship enhancing motives, such that relationship enhancing motives would be most relevant among people experiencing less stress. A strict interpretation of the MODE model would suggest that partners experiencing high levels of stress should make deliberative judgments that match their automatic partner attitudes regardless of their level of motivation to rate the relationship positively whereas motivations should guide judgments among people experiencing low levels of stress. That is, the MODE model suggests that opportunity acts as a gate that opens or closes access to motivated reasoning. It is important to realize, however, that recent perspectives (see Job et al., 2010; Vohs et al., 2012) suggest some motives, especially strong ones, can override limits to cognitive capacity. Thus, we made no strong predictions regarding exactly how motives and stress would interact, except to expect that stress should increase the association between automatic partner attitudes and self-reported judgments and relationship enhancing motives should decrease that association.

Using the same three motivation variables described above (motivation to solve problems, the Relationship Agenda subscale from the Commitment Inventory, and the commitment subscale from the Investment Model Scale), we examined three separate three-way interactions. To do this, we estimated a two-level model in which we regressed participants' reports of relationship satisfaction onto their (a) automatic partner attitudes, (b) motivation to evaluate their relationship positively, (c) the impact of their nonrelationship stress, the two-way interactions between (d) automatic partner attitudes and relationship motivation, (e) automatic partner attitudes and nonrelationship stress, and (f) relationship motivation and nonrelationship stress, and (g) the three-way interaction between relationship motivation, nonrelationship stress, and automatic partner attitudes. Again, repeated measures were nested within individuals, and dyad members were estimated separately and simultaneously with separate intercepts. Across all models, all estimates, with exception of controls for time and baseline positive and negative attitudes, were allowed to vary across husbands and wives.

Results for these analyses can be found in Table 9. Consistent with predictions, each of the three Motivation × Stress × Automatic partner attitude interactions was significant for wives, but not husbands. As can be seen in Figure 5, the patterns of associations were similar across the three conceptually similar but empirically distinct relationship motivations—high stress was only associated with a stronger association between automatic partner attitudes and self-reported judgments of the relationship among wives with relatively low relationship-enhancing motivations. Indeed, the two-way interaction between automatic partner attitudes and nonrelationship stress was significant for wives with low motivation to solve problems, $\beta = 0.31$, 95% CI [0.19, 0.43], $t(208) = 5.11, p < .001$, but not significant for wives with high motivation to solve problems, $\beta = 0.08$, 95% CI [-0.05, 0.20], $t(208) = 1.24, p = .215$. Similarly, as can be seen in Figure 5A and 5C, the two-way interaction between automatic partner attitudes and nonrelationship stress was significant for wives with low levels of commitment (“relationship agenda” subscale from the Commitment Inventory, $\beta = 0.25$, 95% CI [0.12, 0.39], $t(209) = 3.90, p <$

.001; Investment Model commitment scale, $\beta = 0.26$, 95% CI [0.14, 0.38], $t(209) = 4.38, p < .001$), but not significant for wives with high levels of commitment (“relationship agenda” subscale from the Commitment Inventory, $\beta = 0.09$, 95% CI [-0.04, 0.22], $t(209) = 1.42, p = .159$; Investment Model commitment scale, $\beta = -0.03$, 95% CI [-0.15, 0.09], $t(209) = -0.53, p = .595$).

We also examined whether social desirability operated in a similar fashion by examining the three-way interaction between social desirability, stress, and automatic partner attitudes. It did not, $\beta = -0.02$, 95% CI [-0.10, 0.06], $t(210) = -0.56, p = .579$, suggesting social desirability motivations did not operate in a similar fashion. Finally, in the ultimate test of the effect of social desirability versus motivation to view the relationship positively, we examined whether the three other three-way interactions described above remained significant for wives when controlling for social desirability and its interactions. As expected, the three-way interactions containing motivation to solve problems, $\beta = -0.13$, 95% CI [-0.26, -0.01], $t(210) = -2.13, p =$

Table 9
Three-Way Interaction Between Automatic Partner Attitudes, Motivation, and Stress Predicting Explicit Relationship Satisfaction

Measure	Motivation to solve problems		Commitment inventory – Rel. agenda		Investment model commitment	
	β	SE	β	SE	β	SE
Intercept						
Husbands	-0.07	0.09	-0.06	0.08	-0.05	0.08
Wives	-0.07	0.09	-0.09	0.08	-0.03	0.09
Time						
Husbands	-0.27 ^{***}	0.06	-0.20 _p ^{**}	0.05	-0.08 _p	0.09
Wives	-0.27 _p ^{***}	0.06	-0.20 _p ^{**}	0.05	-0.08 _p	0.09
Baseline RT to positive words						
Husbands	-0.13 _p	0.10	-0.13 _p	0.09	-0.15 _p [†]	0.09
Wives	-0.13 _p	0.10	-0.13 _p	0.09	-0.15 _p [†]	0.09
Baseline RT to negative words						
Husbands	0.13 _p	0.10	0.14 _p	0.10	0.18 _p [†]	0.10
Wives	0.13 _p	0.10	0.14 _p	0.10	0.18 _p [†]	0.10
Automatic partner attitudes (APA)						
Husbands	0.08	0.07	0.06	0.06	0.07	0.07
Wives	0.12 [†]	0.06	0.06	0.06	0.10 [†]	0.06
Impact of nonrelationship stress						
Husbands	0.07	0.10	-0.02	0.11	0.09	0.08
Wives	-0.17 [*]	0.08	-0.19 [*]	0.10	-0.08	0.10
Motivation						
Husbands	0.16 [*]	0.07	0.45 ^{***}	0.11	0.26 ^{**}	0.08
Wives	0.09 [†]	0.05	0.43 ^{***}	0.09	0.20 ^{**}	0.07
APA × Stress						
Husbands	0.16 [†]	0.10	-0.00	0.07	0.10	0.07
Wives	0.19 ^{***}	0.04	0.17 ^{**}	0.06	0.11 [*]	0.04
APA × Motivation						
Husbands	-0.08	0.06	-0.04	0.10	-0.00	0.08
Wives	-0.10 [*]	0.04	0.04	0.07	-0.06	0.06
Stress × Motivation						
Husbands	-0.02	0.14	0.32	0.22	0.08	0.07
Wives	-0.01	0.10	-0.13 [*]	0.06	0.18 [*]	0.07
APA × Motivation × Stress						
Husbands	0.10	0.11	0.25	0.17	0.03	0.08
Wives	-0.12[*]	0.05	-0.08^{***}	0.02	-0.15^{***}	0.04

Note. RT = reaction time; APA - Automatic Partner Attitude. _p indicates that effect was pooled because it did not differ between husbands and wives. Bolded effects indicate the key Automatic Partner Attitude × Motivation × Stress interaction in each model.
[†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

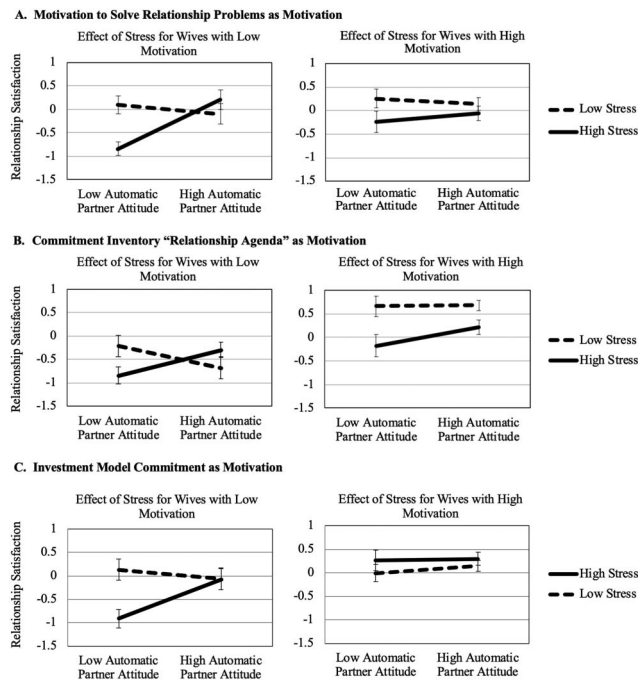


Figure 5. Three-way interactions between motivation, nonrelationship stress, and automatic partner attitudes for wives in Study 5.

.034, “relationship agenda” commitment, $\beta = -0.11$, 95% CI $[-0.16, -0.06]$, $t(202) = -4.56$, $p < .001$, and Investment Model Scale commitment, $\beta = -0.16$, 95% CI $[-0.25, -0.06]$, $t(202) = -3.37$, $p = .001$, all remained significant for wives when controlling for social desirability and its interactions.

Discussion

Study 5 offers additional support for our theoretical perspective by showing that higher levels of stress leads to closer correspondence between automatic and deliberative relationship evaluations over time. We argue that people who experience more frequent stress over time more frequently judge and reevaluate their relationships while experiencing limits to cognitive capacity due to their extensive deliberative focus elsewhere, which allows their automatic partner attitudes to influence their judgments on a regular basis (as shown in Study 4). Over time, we argue such attitude-infused judgments accumulate and become reflected even in people’s global judgments of their relationships.

Several supplemental analyses enhanced our confidence that these findings offered support for our theoretical perspective that stress minimizes people’s ability to view their relationships in motivationally consistent ways. Given the possibility that relationship stress may have increased intimates’ motivations to be accurate (see Brandstätter & Schuler, 2013; Fletcher et al., 2006; Gagné & Lydon, 2004), we limited our measure of stress to stressors not directly stemming from problems with the relationship itself. Further, helping to rule out the possibility that stress moderated the association between automatic partner attitudes and relationship judgments merely because stress led

to negative evaluative sentiment, particularly for those with more negative automatic attitudes, the interactive association remained significant controlling depressive symptoms and the perceived severity of relationship problems. Likewise, helping to rule out the possibility that stress moderated the association between automatic partner attitudes and relationship judgments because stress reduces people’s motivations to perceive the partner positively, the interactive association also remained significant controlling general levels of commitment, specific motivation to maintain the relationship, and motivations to solve relationship problems. Finally, helping to rule out the possibility that people override their automatic partner attitudes when reporting their relationship judgments because they are motivated to present themselves positively (rather than view the relationship positively), the interactive association between stress and automatic partner attitudes remained significant controlling for a measure of social desirability. Moreover, the interaction was further moderated by several conceptually similar but empirically distinct relationship enhancement motives among wives but not by social desirability for either husbands or wives. Specifically, wives reporting lower relationship enhancing motivations reported deliberative relationship evaluations that were more closely aligned with their automatic partner attitudes when they experienced stress. Husbands under high levels of stress, in contrast, actually appeared to boost their judgments in response to their more positive automatic partner attitudes when they experienced stress, suggesting that the cognitively limiting effects of stress may be beneficial for people with positive feelings toward their partners. This gender difference is consistent with evidence that women both suffer more severely from stress (Matud, 2004) and demonstrate stronger relationship-enhancing motivations (see Baker & McNulty, 2011; Cross & Madson, 1997). Nevertheless, given that this finding was not predicted a priori, it should be interpreted with caution until it can be replicated in future research.

Taken together, these results suggest that frequent experiences of stress over time may predict declines in satisfaction because they allow automatic partner attitudes to infuse explicit judgments of relationship satisfaction, as they have been shown to do in other research (McNulty et al., 2013; McNulty et al., 2017; Scinta & Gable, 2007). That said, it is worth highlighting that particularly high levels of relationship enhancing motivations appeared to be sufficient to override the limiting effects of stress, at least among women, a finding that is consistent with research suggesting strong motivations can override typical limits to cognitive capacity in other domains (see Job et al., 2010). A strict interpretation of the MODE model suggests opportunity factors operate as a gate, which can presumably close and thus completely block motivation. Although it is possible that particularly high levels of stress may override even the strongest motivations (see Vohs et al., 2012), it is also possible that opportunity factors are better conceptualized as a dam that can be inevitably be overridden by exceptionally strong motivations, rather than as a gate that can block motivation completely. At the very least, this result highlights the power of relationship enhancing motivations in relationship cognition.

General Discussion

What information do people consider when they evaluate their close relationships? According to interdependence theory, they consider (among other things) the costs and rewards of the relationship, which perspectives of social cognition suggest are summarized as attitudes that are automatically activated upon encountering the partner (De Houwer, 2009; Fazio, 2007; Fazio & Olson, 2014; Fazio et al., 1986; Ferguson & Zayas, 2009; Gawronski & Bodenhausen, 2006; see Hicks & McNulty, 2019). Indeed, from an objective standpoint, it makes sense that people would rely, at least in part, on the feelings activated by their partners when evaluating the relationships—what should matter more? But perspectives on cognitive consistency and motivated reasoning suggest people's insights into such feelings may be obscured by their goals, desires, and existing propositional beliefs (see Ditto & Lopez, 1992; Gawronski & Bodenhausen, 2006; Gawronski & Strack, 2004; Kunda, 1990). Indeed, the desire to view a partner in a positive light is ubiquitous (Murray, 1999) and a robust body of work suggests relationship evaluations are positively biased (Gagné & Lydon, 2001; Karney & Frye, 2002; McNulty & Karney, 2001; Murray, 1999; Murray & Holmes, 1993, 1994; Murray et al., 1996; Neff & Karney, 2003; for reviews, see Fletcher & Kerr, 2010; Gagné & Lydon, 2004; Karney et al., 2001). The current work suggests that motivational forces lead people's deliberative evaluations away from their automatic feelings, but also that stress, which is known to minimize cognitive capacity devoted to relationship evaluation (Buck & Neff, 2012; Neff & Karney, 2009), can minimize this ability.

Study 1 was a meta-analysis of studies including both implicitly and explicitly assessed relationship evaluations among people in ongoing relationships and in Studies 2a–2c partnered participants were directly asked to report their spontaneous feelings toward their partners. These studies revealed little or no association between automatic feelings and relationship judgments, supporting our prediction that on average people do not rely on their automatic partner attitudes when deliberately judging their relationships. Of course, an alternative explanation drawn from a debate in the field of social cognition (see Gawronski et al., 2006) is that people are actually *unable* to access the evaluative associations indicating how they feel about their romantic partner. Thus, in our remaining three studies, we examined whether people's tendency to utilize their automatic partner attitudes when deliberately evaluating their close relationships is moderated by factors related to participants' motivation and opportunity to override their automatic evaluations.

Confirming our predictions that people are able to access their gut-level feelings about their partners under certain circumstances, Studies 3 and 4 demonstrated that decreased motivation for people to view their relationships in a positive light was associated with greater correspondence between their automatic partner evaluations and their deliberative relationship judgments. Specifically, in Study 3, participants' deliberative relationship judgments were more closely aligned with their automatic partner attitudes when we introduced a monetary incentive for participants to more accurately estimate their spontaneous feelings toward their partners. Presumably, the motivation to gain \$500 in our study was strong enough to compete with the motivation to maintain positive views of the partner. Similarly, in Study 4, participants' relationship

judgments were more closely aligned with their automatic partner attitudes when they were less motivated to view their relationship positively as a result of relationship dissolution. Moreover, Studies 4 and 5 demonstrated that stress, which is known to minimize cognitive capacity in relationship evaluation (see Buck & Neff, 2012; Neff & Karney, 2009), was also associated with greater correspondence between automatic partner evaluations and deliberative relationship judgments. Participants' self-reported relationship judgments were more closely aligned with their automatic partner attitudes when they experienced limits in their ability to override their automatic inclinations due to daily stress reported in a 14-day diary in Study 4. Study 5 extended these findings by showing people's self-reported relationship judgments better reflected their automatic feelings each year over the first two years of marriage when they reported having experienced more stressors over the prior year. Notably, the effect in Study 5 was further moderated by relationship enhancing motivations among women, such that women who reported particularly high levels of motivation did not report judgments that reflected their attitudes. Although the role of motivation in further moderating this association was expected based on the MODE model, the gender difference was not predicted and thus should be interpreted with caution. Finally, follow-up analyses in Study 5 provided support for the possibility that stress operated by reducing cognitive capacity by helping to rule out the alternative possibility that stress brought evaluations in-line with automatic attitudes by (a) making people perceive their relationships or lives more negatively or (b) reducing people's relationship enhancement motivations. Taken together, these studies suggest that people can have awareness of their gut-level feelings and they demonstrate some of the specific circumstances under which such feelings may inform people's more deliberative relationship judgments.

In sum, returning to our initial questions regarding whether people know how they feel about their romantic partners and whether they use those feelings when deliberately judging their relationships, the current studies support the idea that (a) people can—in principle—access their gut-level attitudes about their romantic partners but (b) because of pervasive motivations to see their relationships in a positive light, they may not rely on their automatic partner attitudes when deliberately judging their relationships—unless they encounter limits in their ability to deliberately override their automatic feelings.

Strengths and Limitations

Several strengths of the current research enhance our confidence in these results. First, our participants represent a wide variety of ages, cultures (i.e., American and Dutch), and relationship stages (i.e., dating, married, separated). Second, all of the people who took part in our studies were involved in real (vs. hypothetical) and meaningful relationships and thus the measured processes and outcomes were real and consequential. Additionally, our studies utilized a variety of methodologies, including online and in-lab studies, cross-sectional and longitudinal assessments, and different measures aimed at capturing deliberative relationship evaluations and automatic partner attitudes. Finally, in Study 5, we were able to enhance confidence in our theoretical framework by minimizing the plausibility of several alternative explanations. All of these

strengths lend confidence to the generalizability and robustness of these findings.

Nevertheless, several limitations of the current studies highlight the need for cautious interpretation of these results until they can be extended in future research. Most notably, all of our studies are correlational and thus causal conclusions should be drawn with caution. We acknowledge that this is a significant weakness of our work. Nevertheless, we had several reservations regarding the likelihood that lab-based experimental manipulations, particularly manipulations of cognitive capacity, would alter self-reported relationship satisfaction in the lab. These concerns discouraged us from attempting experimental manipulations in the current work. Most notably, we doubted we could reduce cognitive capacity enough to sufficiently curtail the effects of people's strong motivations to view their relationship positively. Initially, we considered some of the common manipulations of cognitive capacity, such as in-lab emotion suppression tasks, *e*-crossing, or inducing cognitive load (e.g., asking people to count backward, displaying confusing and distracting images). Our concern with these manipulations was that participants' motivation to perceive their relationships positively would be so strong that it would easily influence self-reports despite such weak manipulations. Indeed, ample research indicates the motivation to maintain positive beliefs about one's relationship is particularly strong (see Murray, 1999), and we know from research on self-regulation that people are able to regulate their behaviors despite these manipulations when it is important for them to do so (see Job et al., 2010; Muraven & Slessareva, 2003; Vohs et al., 2012). Next, we considered stronger manipulations, such as inducing stress in the lab, asking participants to abstain from eating or sleeping, and even administering alcohol. Although such manipulations would likely reduce cognitive capacity more substantially, and we assumed to the point that they would override motivation to perceive the relationship positively, we were concerned with the ethics and practicality of such manipulations. Moreover, we were also concerned that those manipulations would introduce many of the same confounds that undermine causal conclusions in the current work. Finally, we feared that, even if we did sufficiently minimize cognitive capacity in the lab to the extent that we were able to minimize the effects of people's strong motivations to view their relationship positively, people would simply rely on rehearsed heuristics when reporting their relationship satisfaction rather than use their gut. That is, we assume many people often deliberate about their relationships in the context of their everyday lives, rehearsing and even automating their desired evaluations whenever relevant events occur (a date, an argument, one couple member sacrifices or compromises). We feared that people would simply reiterate these well-rehearsed judgments in any simple laboratory paradigm involving high cognitive load. In real-life settings, like those presumably captured in Studies 4 and 5, we assume people actually reevaluate their relationships occasionally based on real relationship experiences like those listed above, and that sometimes they do so while under cognitive load from stress (thus allowing automatic attitudes to influence their judgments). Such real-life reasons for evaluating the relationship would be missing in the lab, thus people would have no reason to reevaluate their relationship in the lab, and thus they would simply reiterate rehearsed judgments while under cognitive load. Although all of these concerns are likely empirically testable, they were tangential to our main focus in this work,

and thus we hope that future research will shed light on these issues. In particular, we expect laboratory manipulations of cognitive load would be more likely to allow automatic partner attitudes to shape *novel* behaviors and attributions, which are likely to be less rehearsed than self-reported relationship evaluations.

Given our lack of experimental data, we attempted to rule out several alternative interpretations throughout our studies, particularly in Study 5. Nevertheless, it remains possible that stress and relationship-enhancing motivations moderated the association between automatic partner attitudes and relationship judgments for reasons other than those outlined by our theoretical model. For example, although our measure of social desirability did not account for or moderate our effects, measures of social desirability have been subject to criticism (Barger, 2002). Thus, it remains possible that social desirability played an undetected role in the associations we observed. Likewise, we did not directly assess opportunities to deliberate but instead relied on prior research linking stress to diminished cognitive capacity (see Hofmann et al., 2012). Although we tried to rule out the possibility that the effects of stress emerged for other reasons, these supplemental analyses were also limited by the quality of the measures and thus it remains possible that the effects of stress emerged for a reason other than reduced cognitive capacity for motivated deliberation about the relationship. In sum, although merely showing these factors moderate the association between implicitly and explicitly assessed interpersonal evaluations offers novel theoretical insights, future research may benefit from probing even more deeply into the specific mechanisms of these effects.

Implications

These limitations notwithstanding, this work has theoretical implications for a growing body of literature examining the role of automatic processes in close relationships as well as the study of social cognition more broadly. With respect to the latter, the studies described here provide support for dual-process models of social cognition, particularly the MODE model, and speak to issues at the forefront of social-cognitive literature (e.g., awareness). Specifically, we provided novel evidence for the role of variables conceptually linked to both motivation and opportunity in strengthening the association between automatic partner attitudes and self-reported relationship satisfaction. In fact, although Fazio (1990) first described the MODE model almost 30 years ago, and although numerous studies have provided ample support for it since then (see Fazio & Olson, 2014), Study 5 is the first study of which we are aware to provide evidence for its core prediction that motivation, opportunity, and automatic attitudes enter into a three-way interaction to predict behavioral responses. And notably, this three-way interaction emerged, though only among wives, using three conceptually similar but empirically distinct measures of motivation, all of which were preregistered prior to this aspect of our analyses (see footnote 3).

Moreover, given these theoretical implications, these studies highlight the benefits of studying automatic processes in ongoing close relationships. Whereas much of the current research on automatic processes involves capturing attitudes toward novel targets or exemplars of minority groups with whom participants may not have much experience (for exception, see Towles-Schwen & Fazio, 2003), close relationships offer a unique opportunity to

examine automatic evaluations that have important implications and involve a target that is motivationally relevant and encountered repeatedly in various contexts over time that involve both pleasant and unpleasant affect.

Further, this research also offers evidence of a novel opportunity factor to be considered in research on MODE model processes—stress. Consistent with the idea that stress minimizes cognitive capacity in relationship evaluation, the stronger associations that emerged between implicitly and explicitly assessed evaluations among people experiencing more (vs. less) stress suggests such people may have relied more on their automatic partner attitudes when judging the quality of their relationships. Future research may benefit from examining whether stress similarly accentuates the effects of automatic evaluations on other self-reports and behaviors. For example, people may be more likely to report or even act on their prejudice attitudes while experiencing stress and, like other opportunity factors (Hofmann et al., 2007; Nederkoorn et al., 2010), stress may determine whether people act on their implicit preferences for unhealthy food.

Finally, the research also suggests important nuances in the interactive effects of opportunity and motivation posited by the MODE model. The MODE model suggests that opportunity factors act as a gate, an analogy that may imply to some that opportunity can completely shut off the influence of motivation. Although this may occur at times, it may be more common for stress and motivation to be more continuous, such that relative levels of either can override the other. In the current research, wives experiencing high levels of stress reported judgments that aligned with their automatic attitudes when they reported relatively low motivations to enhance the relationship; relatively high motivations to enhance the relationship appeared sufficient to override automatic attitudes even in the face of high stress. As such, opportunity factors may be better conceptualized as a dam. Although a gate can be partially opened, the concept of a gate implies a complete closure is possible. In contrast, comparing opportunity to a dam implies it is always theoretically possible for motivation to be high enough to overcome it. To the extent that this perspective is correct, it may also have implications for our understanding of the role of motivation in self-regulation processes generally (Friese, Loschelder, Gieseler, Frankenbach, & Inzlicht, 2019; Job et al., 2010; Vohs et al., 2012).

In addition to these implications for research on social cognition and self-regulation more broadly, this research also has several theoretical implications with respect to relationship science. First, these studies offer insights into the process by which automatic partner evaluations ultimately predict long-term relationship outcomes (McNulty et al., 2013). Given that people make increased investments into their relationships over time that may increase their commitment (Rusbult, 1983), it is likely that they remain relatively motivated to view their relationship in a relatively positive manner, at least on average (see Murray, 1999; Rusbult & Buunk, 1993), though such motivations may waver occasionally (see Gagné & Lydon, 2004). At the same time, however, it is also inevitable that people will encounter stress and other experiences that limit their ability to override any negative feelings that are activated by their partners, people will ultimately face situations in which they must rely on their automatic feelings when judging their relationships. For example, people may engage in extensive deliberation during a particularly stressful week at work, while

coping with a family member's illness, or when facing financial setbacks, and such deliberations may direct deliberative reasoning processes to these other critical goals, leaving people to evaluate use their automatic partner attitudes when evaluating their relationships after a recent fight. Over time, such attitude-infused deliberations may accumulate, leading to deliberative evaluations that more closely reflect automatic partner attitudes. The more partners are required to consider the automatic feelings activated by their partners, the harder it may become to sustain such positive beliefs in the face of any negative automatic evaluative associations.

Additionally, the research described here provides further testament to the potential damaging effects of stress for close relationships. Consistent with the vulnerability-stress-adaptation model of marriage (Karney & Bradbury, 1995), Studies 4 and 5 highlight the fact that romantic relationships do not exist inside a vacuum—stress affects almost everyone, and when it does, it has the potential to negatively affect their relationships. At the same time, however, the current research offers the novel insight that stress may not be equally harmful for all people. Rather, stress was only weakly negatively associated with satisfaction among people with more positive automatic attitudes in Study 4 and actually positively associated with self-reported relationship satisfaction among husbands with more positive automatic partner attitudes in Study 5. Consistent with the MODE model principles guiding this research, these findings suggest precisely how stress affects relationships—it leads people to fall back on their automatic impulses. When those impulses are negative, relationships suffer. But when those impulses are more positive, stress may be less harmful. Accordingly, remaining satisfied with a relationship requires (a) maximizing the balance of positive versus negative evaluative associations activated by the partner, (b) minimizing stress and other factors that can threaten cognitive capacity, or (c) increasing motivation to override automatic negative impulses when they arise. There are likely various self-regulation strategies that can address each of these mechanisms. For example, couples facing acute risk, such as physical separation from one another, may benefit from interventions aimed at directly enhancing automatic partner attitudes (see McNulty et al., 2017). Likewise, couples facing particularly high levels of stress may benefit from any existing stress management techniques known to enhance cognitive capacity (see Chiesa, Calati, & Serretti, 2011).

Future Directions

The studies presented here, as well as the application of dual-process models to the study of close relationships more generally, also provide several additional directions for future study. First, research may benefit from examining the variation in strength of different types of motivations to view a relationship positively. Although people appear to hold relatively strong motivations to view their relationships positively on average, people may vary in the specific reasons for their motivations. For example, some people may be motivated to view their relationships positively because they are high in commitment that stems from genuine satisfaction and attraction, referred to as personal commitment (Johnson, 1999) or dedication commitment (Stanley & Markman, 1992) whereas other people may be motivated to view their relationships positively because they are high in commitment that

stems from barriers to exiting the relationship. Further, the extent to which each motivation is activated within a given person may vary based on various contextual factors. For example, remembering a fun date may activate dedication commitment, playing with one's children may activate constrain commitment, and starring at a wedding ring may activate both constraint and dedication commitment. Further still, all these motives might be challenged by any motivations to perceive a partner accurately, which may be activated whenever people face important relationship decisions, such as whether to have children, whether to get married, or whether to get a divorce (see Gagné & Lydon, 2004). If each of these different sources of motivation lead to different strengths in motivation to view a relationship positively, whichever combination of motivations is activated at any one time may play an important role in whether people use their automatic partner attitudes when deliberately evaluating their relationship. Future research may benefit from addressing these issues.

Future research may also benefit from examining other processes relevant to the opportunity to deliberate about relationship judgments. We examined stress because it is critical to theories of relationships (Karney & Bradbury, 1995) and seemed like an obvious first step in examining factors that minimize extensive deliberation. But it is unlikely that stress is the only experience that results in limits in the ability to override automatic partner attitudes. Any experience that limits time, increases cognitive load, or otherwise reduces cognitive capacity might interfere with people's ability to maintain their deliberative motivated judgments. Indeed, other research on relationships demonstrates that automatic attitudes predict spontaneous (i.e., difficult to control) behaviors (Faure, Righetti, Seibel, & Hofmann, 2018) and self-reported outcomes when cognitive capacity is low (Murray et al., 2011; Murray, Lupien, & Seery, 2012), and research outside the domain of relationship science suggests several other opportunity variables that may be relevant by showing that automatic attitudes are more predictive of behaviors when people are (a) under the influence of alcohol (Hofmann & Friese, 2008), (b) experience sleep deprivation (Ghumman & Barnes, 2013), or (c) have low working memory capacity (Hofmann, Gschwendner, Friese, Wiers, & Schmitt, 2008). Thus, future research could examine the effects of these and other related variables to examine whether they similarly increase the correspondence between automatic partner attitudes and self-reported evaluations or behavior. As noted earlier, however, we expect any manipulations of such variables would need to be quite powerful to overcome the effects of motivation to view a romantic partner positively.

Conclusion

Based on the studies described here, it appears that people can know how their relationship partners make them feel, but, because they often desire to see their relationship partners in a positive light, they may avoid accessing these feelings when possible. Accordingly, it may be at times when people are at their weakest that the feelings associated with their partners are most apparent—both to themselves and to others. This development in our understanding of automatic processes in close relationship not only illuminates the processes by which deliberative judgments of relationship quality are formed and change, but it also has the potential to spark future developments to our knowledge of rela-

tionship development more generally. That is, the continued application of models that allow for strong predictions about the conditions of implicit-explicit correspondence to relationship science, such as dual-process or dual-system models of judgment and decision making, may offer further insights into how automatic attitudes form, change, and shape judgments, behaviors, and outcomes, ultimately enhancing our understanding of relationship science and social cognition more broadly.

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Received February 1, 2019

Revision received March 23, 2020

Accepted March 25, 2020 ■