Reports

Regulating connection: Implicit self-esteem predicts positive non-verbal behavior during romantic relationship-threat ☆

Julie Longua Peterson [a,*], Tracy DeHart [b]

[a] Department of Psychology, University of New England, USA
[b] Department of Psychology, Loyola University Chicago, USA

HIGHLIGHTS

► We propose that implicit self-esteem regulates connection after relationship-threat.
► Experimental and observational methodologies were used to test this idea.
► Implicit self-esteem predicted nonverbal connection behavior following the threat.
► Partner commitment moderates the effect of implicit self-esteem on connection.

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ABSTRACT

In the current research we suggest that in response to relationship-threat implicit self-esteem regulates connection, and this process is moderated by perceptions of a partner's commitment. We used experimental and observational methodologies to explore this possibility. Study 1 indicated that, in the relationship-threat condition, participants high (vs. low) in implicit self-esteem reported engaging in more positive nonverbal behaviors when they perceived their partner as more committed. Participants high and low in implicit self-esteem did not differ in behavior when partner commitment was low. This pattern was not evident in the control condition. Study 2 similarly revealed that participants high (vs. low) in implicit self-esteem were observed engaging in more positive nonverbal behavior during a conflict interaction when they perceived their partner as more committed. Participants high and low in implicit self-esteem did not differ in behavior when partner commitment was low. The results suggest that implicit self-esteem predicts connection and may be particularly sensitive to evidence of a partner's availability.

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Introduction

The need to belong and feel accepted is a fundamental human motivation (Baumeister & Leary, 1995; Bowlby, 1982). Not surprisingly then, a lack of belongingness can lead to goal-directed behavior and activity aimed at maintaining relationships (e.g., Baumeister & Leary, 1995; Pickett, Gardner, & Knowles, 2004). Because romantic relationships provide one of the most crucial kinds of relationships for satisfying belongingness and acceptance needs, it is important to understand how people maintain these relationships following threats to acceptance. Interestingly, the potential effects of implicit self-evaluations on responses to relationship-threat have been largely overlooked in the literature on self-esteem and relationship functioning. Much of the research exploring how people respond to threat in their romantic relationships has focused on the moderating role of explicit self-esteem. Though such previous research highlights the importance of explicit self-evaluations for regulating the risk of rejection in close relationships (e.g., Murray, Derrick, Leder, & Holmes, 2008; Murray, Holmes, & Collins, 2006), it also suggests that explicit self-esteem influences the relatively controlled end of this risk-regulation process.

In the current research we propose that the more automatic goal of connection (see Murray et al., 2008) is regulated by the more automatic, implicit self. In addition, because implicit self-esteem is most likely to manifest in nonverbal behavior (e.g., Pelham & Hetts, 1999; Rudolph, Schroder-Abe, Riketta, & Schutz, 2010; Spalding & Hardin, 1999), we specifically explored how implicit self-esteem regulates the use of nonverbal behaviors that should promote connection during threat. Finally, we hope that by providing empirical evidence for the behavioral effects of implicit self-esteem, the current research will inform the debate about the validity of implicit self-esteem measures (Buhrmester, Blanton, & Swann, 2011).

Implicit self-esteem and nonverbal behavior

Implicit self-esteem (like explicit self-esteem) has social origins, developing based on how people are regarded by significant others (e.g., DeHart, Longua, & Smith, 2011; DeHart, Pelham, & Tennen, 2006; Koole, Dijksterhuis, & van Knippenberg, 2001). For example, the sociometer theory suggests that self-esteem functions as an interpersonal monitoring system, working preconsciously to monitor social acceptance (Leary, 2005; Leary, Tambor, Terdal, & Downs, 1995). Consistent with this theory, people's level of implicit self-esteem corresponds to the quality of their early interactions with parents (DeHart et al., 2006), and predicts interpersonal reconnection following negative social events (DeHart, Tennen, Armeli, Todd, & Mohr, 2009) and communal motivations following negative feedback about a partner (Lemay & Clark, 2009). Unlike explicit self-esteem, however, implicit beliefs about the self are thought to develop earlier, and overtime become over learned and automatically elicited (Bowlby, 1988; Koole & DeHart, 2007; Koole et al., 2001). While some researchers suggest implicit self-evaluations are nonconscious (e.g. Greenwald & Farnham, 2000; Pelham & Hetts, 1999), recent work argues that these evaluations can sometimes be consciously experienced (e.g., Jordan, Whitfield, & Zeigler-Hill, 2007; Koole, Govorun, Chang, & Gallucci, 2010).

Research exploring the behavioral correlates of self-esteem suggests that implicit self-evaluations should be most predictive of nonverbal (Chartrand & Bargh, 1999; Hetts & Pelham, 2001; Rudolph et al., 2010; Spalding & Hardin, 1999) and spontaneous behaviors (Conner & Barrett, 2005; Rudolph et al., 2010). For example, experimental research by Spalding and Hardin (1999) showed that during a threatening self-relevant interview observer-rated nonverbal anxiety was related to participants' implicit self-esteem, but not their explicit self-esteem. Rudolph et al. (2010) similarly showed that implicit (but not explicit) self-esteem predicted nonverbal anxiety and spontaneous self-confident behavior following a threatening self-relevant interview and public speaking task respectively. Presumably, the effect of implicit self-esteem on nonverbal behavior will extend to other threatening contexts, such as threatening romantic relationship interactions.

Implicit self-esteem and the regulation of connectedness

Research has strongly supported the role of explicit self-esteem for regulating responses to relationship-threat (e.g., Bellavia & Murray, 2003; DeHart, Tennen, Armeli, Todd, & Affleck, 2008; Murray et al., 2006, 2008; Murray, Griffin, Rose, & Bellavia, 2003; Murray, Rose, Bellavia, Holmes, & Kusche, 2002; cf., Baumeister, Campbell, Krueger, & Vohs, 2003). Though none of this research has explored whether implicit self-esteem also moderates responses to relationship-threat it does point to the potential role of implicit self-esteem in the relationship-regulation process. Specifically, Murray et al. (2008) have shown that interpersonal risk automatically activates connectedness goals, which are followed by an executive control system that either prioritizes these goals for connection or overrides them with self-protection concerns. Similar to Murray et al.'s (2008) assertion that goals for connection come online first, some researchers have argued that implicit self-esteem also comes online first, while explicit self-esteem comes online as a corrective process (e.g., Olson, Fazio, & Hermann, 2007). Because both implicit self-esteem and connectedness goals appear to come online initially, levels of implicit self-esteem ought to predict whether people pursue goals for connection. For example, if implicit self-esteem functions as an indicator of social acceptance (Leary, 2005; see also DeHart et al., 2006, 2009; DeHart, Pelham, Fiedorowicz, Carvallo, & Gabrial, 2011), people high (vs. low) in implicit self-esteem should be more likely to engage in nonverbal behaviors that promote connection with their partners in response to relationship-threat.

However, there may be relationship factors that moderate the relation between implicit self-esteem and the pursuit of connection.

Researchers exploring implicit relationship-regulation have shown that implicit beliefs are more sensitive to fluctuations in current relationship dynamics than explicit beliefs (DeHart, Pelham, & Murray, 2004; Murray, Holmes, & Pinkus, 2010). DeHart and colleagues found that, for people with low explicit self-esteem, implicit evaluations of romantic partners were contingent on perceptions of current relationship quality. Longitudinal research has similarly revealed that daily interactions that convey partner responsiveness predict implicit evaluations of romantic partners over time, but do not predict explicit evaluations of the partner (Murray et al., 2010). Finally, Murray et al. (2011) report that, when participants are not cognitively taxed, implicit trust for a partner predicts approach oriented behavior differently depending on explicitly held doubts about a partner's love (Study 5).

Because implicit beliefs appear to be affected by explicit cues of partner availability, the implicit self may be particularly sensitive to insecurities about a partner's commitment. That is, when perceptions of a romantic partner's commitment are low (vs. high), even people with high implicit self-esteem may resist automatically activated goals and regulate connection in ways similar to their low implicit self-esteem counterparts. Consistent with this reasoning, previous research on explicit self-esteem has found that when reminded of an un-forgiven partner transgression, people with high explicit self-esteem regulated risk much like people with low explicit self-esteem (Murray et al., 2008; Study 7).

The present research

Using both experimental (Study 1) and observational (Study 2) methodologies the present research examined whether implicit self-esteem predicts nonverbal behaviors that promote connection during relationship-threat, and whether perceptions of a partner's commitment moderates this effect. Because implicit self-esteem serves as a gauge of social acceptance (Leary, 2005; see also DeHart et al., 2006, 2009), we predict that people high (vs. low) in implicit self-esteem will pursue goals for connection by engaging in nonverbal behaviors (e.g., maintaining eye-contact, smiling) that increase closeness during threat. However, people high in implicit self-esteem may only respond to threat by engaging in more positive nonverbal behavior when they perceive their partners as committed to their relationships. Consequently, we predict that when perceptions of a partner's commitment are low (vs. high), people high and low in implicit self-esteem will regulate connection similarly and not differ in positive nonverbal behavior. Finally, consistent with research on the behavioral activation system (BAS; Carver & White, 1994; Gray, 1987) and approach social goals (Gable, 2006), the current research conceptualizes connectedness behaviors as approach oriented attempts to establish closeness. Because avoiding negative behaviors in response to relationship threat should be more in line with the behavioral inhibition system (BIS), and engaging in negative behaviors seems more reflective of self-protection goals (e.g., Murray et al., 2003), we do not expect implicit self-esteem to interact with commitment to predict negative nonverbal behaviors after threat.

Study 1

Participants

One hundred and twenty-eight (83 female) undergraduate students involved in a monogamous romantic relationship of at least 1 month were recruited for participation. The students' mean age was 20.4 years ($SD = 2.4$) and average relationship length was 17.9 months ($SD = 16.3$).

Overview of procedure

Participants came to the research lab to complete computer-based surveys, including demographic information, a relationship questionnaire and a measure of implicit self-esteem. Participants were randomly

assigned to the relationship-threat or control conditions. After completing a measure of mood, participants indicated how likely it was that they displayed a series of nonverbal behaviors during the interaction they described in the threat or control condition. Finally, participants provided their own first and last name initials.

Measures

Explicit self-esteem

The 10-item Rosenberg (1965) self-esteem scale was used to tap explicit self-evaluations (e.g., "I feel that I have a number of good qualities"). Participants responded using a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*). Negative items were reverse-scored, such that higher scores indicated higher self-esteem ($\alpha = .88$).

Implicit self-esteem

The Name–Letter Test was used to assess implicit evaluations of the self (Kitayama & Karasawa, 1997; Koole et al., 2001). Participants rated their preferences for all 26 letters of the alphabet. Participants were told that these ratings would be used "to develop stimuli for future studies of linguistic and pictorial preferences". They were instructed to "trust your intuitions, work quickly, and report your gut impressions". Participants then reported their liking for each letter using a 7-point scale (1 = *dislike very much*, 7 = *like very much*). A liking score was computed from the difference between each participant's rating of his or her own first and last name initials and the mean liking for these two letters provided by people whose names did not include that letter (positive numbers indicate higher name–letter preferences). Participants' name–letter preferences were computed by taking the average liking scores for their first and last name initials ($\alpha = .41$).

Commitment

One-item was used to assess participants' own commitment to the relationship. Participants indicated how committed they are to their current romantic relationship on a scale from 1 (*not at all committed*) to 7 (*very committed*). In addition, one-item was used to assess participants' perceptions of their partners' commitment to the relationship on a scale from 1 (*not at all committed*) to 7 (*very committed*).

Relationship-threat manipulation

Participants randomly assigned to the relationship-threat condition were asked to think about and describe an interaction with their romantic partner where they felt intensely disappointed, hurt, or let down by their partner. Previous research has shown that this manipulation successfully elicits the threat of rejection in people (e.g., Murray et al., 2008). Participants in the control condition were asked to write three or more sentences that provided a basic description of the last interaction they had with their romantic partner.

Nonverbal behaviors

10-items were adapted from the Rapid Marital Interaction Coding System (RMICS; Heyman & Vivian, 2000) and were used to tap nonverbal behaviors. Participants were presented with 5 positive (e.g., "maintained eye contact with your partner," "moved or leaned closer your partner," "affectionately touched your partner," "smiled at your partner," "nodded your head affirmatively while partner speaks") and 5 negative nonverbal behaviors (e.g., "rolled your eyes," "shook your head in disagreement," "sighed," "frowned or scowled at partner," "used a negative or angry tone"). Participants indicated how likely it was that they displayed each behavior during the interaction they just described (1 = *definitely did not happen*, 7 = *definitely did happen*). The 5 positive nonverbal items ($\alpha = .90$) and the 5 negative nonverbal items ($\alpha = .90$) were combined to create indicators of reported positive nonverbal behaviors and negative nonverbal behaviors respectively.

Mood

Participants reported their mood (1 = *extremely negative*, 7 = *extremely positive*) directly following the experimental manipulation.

Results

Implicit self-esteem and nonverbal behavior

We ran several multiple regression analyses predicting nonverbal behavior from the centered main effects of explicit self-esteem, implicit self-esteem, perceived partner commitment, condition (1 = *threat*, −1 = *control*), and all possible interaction terms. Because controlling for explicit self-esteem did not change the pattern of results presented, explicit self-esteem was dropped from the model.[1] Gender was significantly related to nonverbal behavior and controlled for in all analyses. Mood was also controlled for in order to ensure that effects were due to levels of implicit self-esteem and perceptions of commitment and not due to mood.[2] Finally, we controlled for the effect of participants' self-reported negative nonverbal behavior on their reports of positive nonverbal behavior (and vice versa).

Positive nonverbal behavior

We wanted to examine the influence of implicit self-esteem and perceived partner commitment on nonverbal connection during a relationship-threat. The multiple regression analysis predicting positive nonverbal behavior (e.g., maintaining eye-contact, smiling) revealed significant main effects for negative nonverbal behavior, condition and implicit self-esteem (left side of Table 1). The two-way implicit self-esteem × condition interaction was not significant. However, consistent with predictions there was a significant three-way implicit self-esteem × perceived partner commitment × condition interaction predicting positive nonverbal behaviors. In the control condition, there was a non-significant implicit self-esteem × perceived partner commitment interaction ($B = .001$, $\beta = .001$, $p = .99$; see Fig. 1). In the relationship-threat condition, there was a significant implicit self-esteem × perceived partner commitment interaction ($B = .45$, $\beta = .36$, $p < .01$; see Fig. 1). Simple slope tests revealed that implicit self-esteem was positively related to positive nonverbal behaviors when perceived partner commitment was high ($B = .65$, $\beta = .56$, $p < .01$), but not when perceived partner commitment was low ($B = -.28$, $\beta = -.24$, $p = .25$). This pattern of results was not found when we substituted the participants' own commitment for perceived partner commitment.

Negative nonverbal behavior

To demonstrate that the influence of implicit self-esteem and perceived partner commitment were specific to positive nonverbal behaviors, we predicted negative nonverbal behavior from the same predictors mentioned above. This analysis revealed a significant main effect of condition suggesting that more negative nonverbal behaviors were reported in the relationship-threat condition. However, there was a non-significant three-way interaction between implicit self-esteem, partner commitment, and condition (right side of Table 1). These findings are consistent with the idea that implicit self-esteem may play an important role in regulating connectedness behaviors (but not self-protection behaviors) in response to relationship-threat.

Discussion

The results of Study 1 revealed that perceived partner commitment moderated the effect of implicit self-esteem on positive nonverbal behaviors in the relationship-threat (vs. control) condition.

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[1] Explicit self-esteem was not related to positive (or negative) nonverbal behavior and did not interact with the condition to predict nonverbal behavior in Study 1 or 2.
[2] Neither gender nor mood moderated any of the effects that are reported in Studies 1 and 2.

Table 1
Multiple regression results for implicit self-esteem, partner commitment and condition predicting self-reported nonverbal behaviors.

	Positive nonverbal (DV)			Negative nonverbal (DV)		
	B	β	t	B	β	t
Intercept	4.75**		19.14	3.04**		14.25
Gender	−.02	−.01	−.07	.83**	.21	3.08
Mood	−.002	−.001	−.02	−.21**	−.16	−2.31
Negative nonverbal	−.31**	−.31	−3.12	–	–	–
Positive nonverbal	–	–	–	−.25**	−.25	−3.12
Condition	−.62**	−.32	−3.31	.80**	.41	5.12
Implicit self-esteem	.20*	.15	1.98	.14	.10	1.49
Partner commitment	.21	.11	1.26	.01	.003	.03
Implicit self-esteem × condition	−.01	−.01	−.10	−.13	−.10	−1.48
Partner commitment × condition	−.26	−.14	−1.62	.14	.08	.98
Implicit self-esteem × partner commitment	.21†	.16	1.96	.18†	.14	1.87
Implicit self-esteem × partner commitment × condition	.22*	.17	2.03	.10	.08	1.01

Note. †$p<.10$. *$p<.05$. **$p<.01$.

Consistent with our predictions, people with high (vs. low) implicit self-esteem reported responding to threat with increased nonverbal closeness, but only when they perceived their partner as more committed to the relationship. When partners were perceived as less committed, people with high implicit self-esteem regulated connection in ways similar to people with low implicit self-esteem. However, we do not know the accuracy of participant's recollections, and it is possible that participant's reports of nonverbal behavior were biased by their current motivational state. That is, because implicit self-esteem can, at times, be consciously experienced (e.g., Jordan, Spencer, Zanna, Hoshino-Browne, & Correll, 2003; Jordan et al., 2007), participants may have become aware of implicit desires for connection, motivating people high in implicit self-esteem to remember behaving positively. Though this possibility is consistent with the idea that implicit self-esteem regulates motivations to connect, we wanted to replicate the findings from Study 1. Therefore, the goals of Study 2 were twofold. First, we wanted to use an observational methodology in which participant behaviors could be coded by independent raters. Second, we wanted to extend the results of Study 1 to another type of relationship-threat: conflict.

Study 2

Participants

Two hundred and four undergraduate college students (102 couples) involved in a monogamous romantic relationship of at least 2 months took part in a study on "Romantic Relationship Interactions".

The students' mean age was 20.73 years ($SD = 1.52$) and average relationship length was 19.95 months ($SD = 16.53$).

Overview of procedure

Participating couples arrived at the lab and independently completed measures of explicit self-esteem, implicit self-esteem, and commitment. The last item of the questionnaire packet asked each member of the couple to independently identify an issue that was a recent source of disagreement in their relationship. Partners were then brought back together and the researcher randomly selected one of the topics for the conflict discussion by flipping a coin (Powers, Pietromanaco, Gunlicks, & Sayer, 2006). After the issue was chosen, participants were told to discuss the last major argument they had about this topic (adapted from Simpson, Rholes, & Philips, 1996). Following the 7-min videotaped discussion session, participants completed a measure of post-conflict mood.

Measures

Explicit self-esteem

As in Study 1, the Rosenberg (1965) self-esteem scale was used to tap explicit self-evaluations ($\alpha = .89$).

Implicit self-esteem

As in Study 1, the Name–Letter Test was used to assess implicit evaluations of the self (Kitayama & Karasawa, 1997; Koole et al., 2001; $\alpha = .44$).

Commitment

We assessed the participants' own commitment and perceived partner commitment with the same two items used in Study 1.

Mood

The Positive and Negative Affectivity Schedule (PANAS; Watson, Clark, & Tellegen, 1988) was used to tap participants' mood following the conflict interaction. The PANAS consists of 10 negative (e.g., *irritable*, *jittery*) and 10 positive (e.g., *excited*, *strong*) emotions. Participants rated the extent to which they felt each emotion on a 5-point scale (1 = *very slightly or not at all*, 5 = *extremely*). An index of positive affect was created by aggregating the positive emotions ($\alpha = .87$) and an index of negative affect was created by aggregating the negative emotions ($\alpha = .87$).

Coding interactions

Videotapes were coded by trained observers. Three independent observers coded male behavior and three coded female behavior. Because ratings of conflict behaviors were continuous, interrater reliability was established by calculating intraclass correlations (ICC).
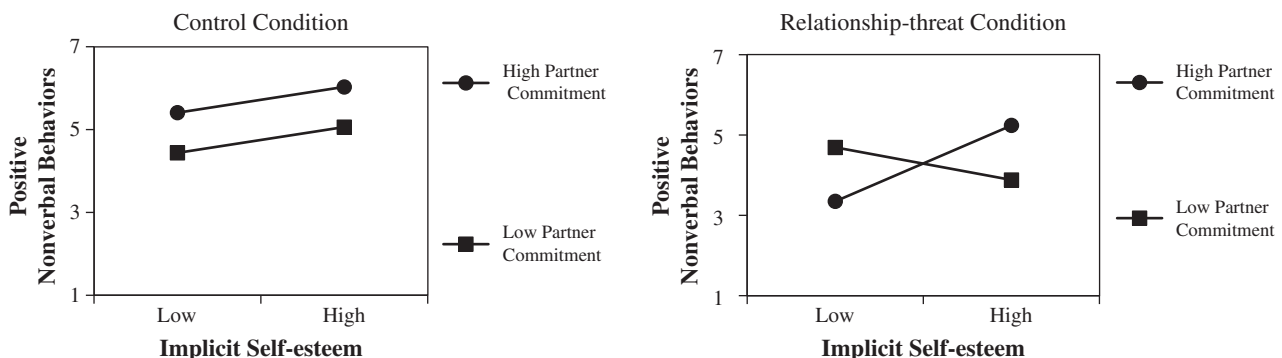

Fig. 1. Predicting positive nonverbal behavior from the interaction between implicit self-esteem and partner commitment in the control and relationship-threat conditions (Study 1).

Two ICCs, one for males and one for females, were computed for each behavior item being coded. The current study used a two way mixed model, where raters are seen as a fixed effect and behaviors are seen as a random effect (Shrout & Fleiss, 1979). A consistency computation was used to determine if raters' scores were correlated (as opposed to identical). Ratings by the three independent observers were averaged to create a single rating for each behavior being coded.

Nonverbal behaviors

Nonverbal behaviors were assessed by ratings on the 10-items used in Study 1 (Heyman & Vivian, 2000). On a scale ranging from 1 (*not at all*) to 7 (*nearly all the time*), nonverbal observers rated the degree to which participants engaged in each of the 5 positive nonverbal behaviors (ICC's = .84 to .98) and 5 negative nonverbal behaviors (ICC's = .75 to .89). Positive behaviors were then combined such that higher scores indicated greater observed positive nonverbal behaviors ($\alpha = .66$). Negative behaviors were combined such that higher scores indicated greater observed negative nonverbal behaviors ($\alpha = .80$).

Results

Multilevel regression analyses

Because the data contains two levels of analysis with individuals (Level 1) nested within a couple (Level 2), SAS PROC MIXED in SAS v.9.2 was used to conduct multilevel regression analyses (Kenny, Kashy, & Bolger, 1998; Nezlek, 2001). This approach allows for the simultaneous estimation of regression equations for partners from the same dyad, while controlling for the interdependence between observations. In the current study, all mixed predictor variables (i.e., those predictors that have variation both within and between dyads, such as implicit self-esteem) were modeled as Level-1 variables (Campbell & Kashy, 2002).

Implicit self-esteem and observer-rated positive nonverbal behavior

We again examined whether perceptions of a partner's commitment moderated the relation between implicit self-esteem and positive nonverbal behavior. Similar to Study 1, all analyses controlled for the effects of explicit self-esteem, gender, negative affect and observer-rated negative nonverbal behavior on participants' positive nonverbal behavior. Because controlling for explicit self-esteem did not change the pattern of results, it was dropped from the final model.[3] The multilevel regression analysis on positive nonverbal behavior revealed a significant two-way implicit self-esteem × perceived partner commitment interaction (left side of Table 2). The simple slope tests indicated that implicit self-esteem was positively related to positive nonverbal behavior when partner commitment was high ($b = .07$, $p < .05$), but not when partner commitment was low ($b = -.02$, $p = .45$; see Fig. 2). Consistent with the findings from Study 1, this pattern of results was not found when we substituted participants' own commitment for perceived partner commitment.

Implicit self-esteem and observer-rated negative nonverbal behavior

To determine whether the results were specific to positive nonverbal behavior, we ran an analysis predicting negative nonverbal behavior using the same predictors mentioned above. This analysis revealed a non-significant two-way interaction between implicit self-esteem and partner commitment (right side of Table 2). Consistent with Study 1, these results suggest that, in response to relationship-threat, implicit self-esteem may be an important predictor of positive nonverbal behaviors, but not negative nonverbal behaviors.

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[3] We tested the 3-way explicit self-esteem × implicit self-esteem × commitment interaction predicting positive and negative observer-rated nonverbal behaviors. This 3-way interaction was not significant in either analysis.

Table 2
Multilevel regression results for implicit self-esteem and partner commitment predicting observer-rated nonverbal behaviors.

	Positive nonverbal (DV)		Negative nonverbal (DV)	
	b	SE	b	SE
Intercept	2.78**	.05	2.06**	.05
Gender	.14**	.03	.06	.04
Negative affect	−.20**	.06	.02	.07
Negative nonverbal	−.30**	.06	–	–
Positive nonverbal	–	–	−.39**	.08
Partner commitment	.04	.05	−.02	.06
Implicit self-esteem	.02	.02	−.01	.03
Implicit self-esteem × partner commitment	.06*	.03	.004	.03

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

Discussion

Study 2 replicated the results in the relationship-threat condition of Study 1, revealing that perceived partner commitment moderated the effect of implicit self-esteem on positive nonverbal behavior during the conflict discussion. Specifically, implicit self-esteem was positively related to nonverbal connectedness behaviors (e.g., smiling, maintaining eye contact) during the conflict when perceptions of partner commitment were high, but not when perceptions of partner commitment were low. It is important to note that Study 1 used a manipulation that asked participants to recall a time when they felt hurt and disappointed by their romantic partner, while Study 2 used an actual conflict interaction. The consistent pattern of results across both studies suggests that implicit self-esteem and perceived partner commitment may play an important role in regulating connection in response to feeling rejected by romantic partners.

General discussion

When participants perceived their romantic partners as more committed to the relationship, those high (vs. low) in implicit self-esteem met needs for connection not only by reporting more positive nonverbal behavior in a previously threatening interaction (Study 1), but also by displaying more positive nonverbal behavior during a videotaped conflict interaction (Study 2). However, when perceptions of partner commitment where low, people high and low in implicit self-esteem did not differ in the types of behavior they reported engaging in (Study 1), or were observed engaging in (Study 2). These results suggest that people with high implicit self-esteem regulated connection in ways similar to their low implicit self-esteem counterparts when they doubted their partner's commitment.

The results of this research are exciting for several reasons. First, consistent with research suggesting that implicit self-esteem predicts
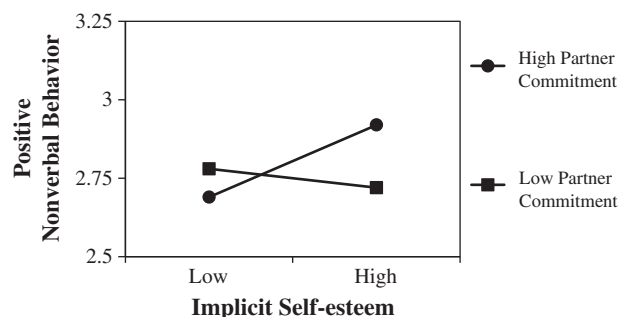

Fig. 2. Predicting positive nonverbal behavior from the interaction between implicit self-esteem and perceived partner commitment (Study 2).

nonverbal behavior in response to self-threats (e.g., Rudolph et al., 2010; Spalding & Hardin, 1999), our results provide some of the first evidence that implicit self-esteem also predicts nonverbal behavior in response to relationship-threats. Second, while our findings suggest that implicit self-esteem regulates nonverbal connection, they also reveal a complex interaction between implicit motivations and conscious correction. That is, when participants explicitly doubted their partner's investment in the relationship, those with high implicit self-esteem appear to correct for automatically activated connectedness goals. These findings are consistent with recent research arguing for the existence of a "smart" relationship unconscious (e.g., Murray et al., 2010). However, people with low implicit self-esteem fail to increase connection to partners they perceive as highly committed. These results may suggest that the unconscious is not always so smart after all. The tendency to resist connection may be so strong for people with low implicit self-esteem that they fail to take into consideration explicit evidence of a partner's love.

Third, the validity of the Name–Letter Test for assessing implicit self-esteem has recently been challenged (Buhrmester et al., 2011). Rather than a measure of automatic self-evaluation, Buhrmester and colleagues contend that the Name–Letter Test is better conceptualized as a measure of implicit egotism (i.e., the unconscious tendency to positively evaluate people, places and objects that are associated with the self; Jones, Pelham, Carvallo, & Mirenberg, 2004; Pelham, Carvallo, & Jones, 2005). However, the complex pattern of results revealed by the current studies cannot be easily explained by an automatic positivity bias. For example, it is unclear how a positive bias toward self-associated objects would regulate nonverbal behaviors under threat differentially for people who perceive their partners to be more (or less) committed. Both the current results and findings from other research on the implicit sociometer (DeHart et al., 2006, 2009) seem more consistent with the view that the Name–Letter Test assesses implicit beliefs about the self, and these beliefs have important effects on behavior.

Lastly, because conflict behavior predicts relationship stability (see Gottman, 1998 for a review), understanding how implicit self-esteem predicts nonverbal attempts for connection could have important implications for relational well-being. For example, research has revealed that not only does romantic love have its own unique, nonverbal correlates (Gonzaga, Turner, Keltner, Campos, & Altemus, 2006), but positive nonverbal communication predicts meaningful relationship outcomes, such as commitment, satisfaction (Gonzaga, Keltner, Londahl, & Smith, 2001) and stability (Gottman, Coan, Carrere, & Swanson, 1998). As such, positive nonverbal behavior may be particularly beneficial for both de-escalating romantic relationship conflict and maintaining relationship stability in the face of relationship threats.

Although the findings from Studies 1 and 2 appear consistent with the idea that implicit self-esteem regulates connection, there are a few issues to be considered. First, research by Murray et al. (2011) shows that, at low levels of reflective (explicit) trust, people high in impulsive (implicit) trust more quickly identify positive trait words as descriptive of their partner, suggesting a willingness to approach the partner even under explicit signs of danger (Study 4). How can we reconcile these conflicting findings? One potential explanation includes differences in outcome measures. While Murray et al. predict the accessibility of partner traits, the current research predicted behavioral responses to threat. Moreover, whereas Murray et al. manipulate explicit feelings of trust, we measure explicit feelings of commitment and then manipulate relationship-threat. In addition, Murray and colleagues operationalize impulsive trust as a participant's automatic evaluative association to their partner. Though implicit evaluations of the self and partner are related, the two are not perfectly correlated (DeHart, Pelham, et al., 2011). Therefore, the relation between implicit self-esteem and behavioral responses to threat may be different than the relation between implicit other regard and trait accessibility.

Second, the current research only used one measure of implicit self-esteem (i.e., the Name–Letter Test; Kitayama & Karasawa, 1997).

Previous research suggests that both the Implicit Association Test (Greenwald & Farnham, 2000) and the Name–Letter Test show a positivity bias and acceptable test-retest reliability (see Bosson, Swann, & Pennebaker, 2000), and the two measures correlate weakly, but significantly (Bosson et al., 2000; Buhrmester et al., 2011). Because research has observed similar effects on different measures of implicit self-esteem that are typically weakly correlated with one another (e.g., Baccus, Baldwin, & Packer, 2004; Dijksterhuis, 2004; Pelham, Carvallo, & Jones, 2005; Pelham et al., 2005; c.f., Buhrmester et al., 2011), future research should explore whether the current findings extend to other measures of implicit self-esteem.

Third, the majority of participants in Study 2 were dating, but not living with their romantic partner (as opposed to living together or married). Though research on the regulation of risk has been applied to both dating and married partners (e.g. Murray et al., 2002), it is important to explore whether the current findings on the regulation of connection hold for different types of romantic relationships. In particular, it may be important to explore whether perceived partner commitment moderates the relation between implicit self-esteem and connectedness behaviors in married relationships, which, by definition, represent more committed relationships. In such relationships, other indicators of partner availability, such as perceptions of daily responsiveness (e.g., Murray et al., 2010) or current relationship quality (e.g., DeHart et al., 2004), may be revealed as important moderators of connection regulation.

Finally, despite the strengths of multilevel modeling, the analyses from Study 2 are correlational in nature and do not allow for causal inferences. For example, we cannot know whether implicit self-esteem caused people to behave a certain way during the conflict. It is possible that other relationship variables or events influenced participants' reports of implicit self-esteem and their nonverbal behaviors. However, because Study 1 manipulated relationship-threat using an experimental design and our results are consistent across both the experimental and correlational methodologies, we believe that the findings from Study 2 likely reflect the differential reactivity of people high and low in implicit self-esteem to relationship-threat.

Despite these limitations, the results of the current studies add to a growing body of research highlighting the importance of implicit processes for regulating relationship dynamics (e.g., DeHart et al., 2004, 2009; Murray et al., 2010). Implicit self-esteem, as assessed by the Name–Letter Test, is related to the quality of parent–child interactions (DeHart et al., 2004), and predicts evaluations of close others (DeHart, Pelham, et al., 2011), interpersonal reconnection following negative interpersonal events (DeHart et al., 2009), and nonverbal responses to relationship-threat (Studies 1 and 2). We agree that there needs to be more research on the behavioral effects of implicit self-esteem (e.g., Buhrmester et al., 2011). However, we also believe that the current research bridges an important gap in the literature on self-esteem and close relationships by providing evidence that people's implicit self-evaluations play an important role in seeking connection with close others after relationship threats.

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