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The good, the bad, and the risky: Self-esteem, rewards and costs, and interpersonal risk regulation during relationship initiation

Danu Anthony Stinson[1], Jessica J. Cameron[2], and Kelley J. Robinson[3]

Abstract

Social risk interacts with self-esteem to predict relationship-initiation motivation and behavior. However, because socially risky situations afford both rewards and costs, it is unclear which affordance is responsible for these effects. Two experiments primed social rewards or costs within different relationship-initiation contexts and then evaluated participants' relationship-initiation motivation and behavior. Results revealed that global self-esteem regulates responses to both affordances. When social rewards were primed, lower self-esteem individuals (LSEs) exhibited stronger relationship-initiation motivation than higher self-esteem individuals (HSEs), whereas the reverse was true when social costs were primed. Furthermore, LSEs exhibited the strongest relationship-initiation motivation when rewards were primed, whereas HSEs exhibited the strongest relationship-initiation motivation and used more successful relationship-initiation behaviors when costs were primed. This pattern of results suggests a complex association between social affordances and self-esteem during relationship initiation that is not predicted or explained by current theoretical models and thus deserves further empirical attention.

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Acceptance, costs, rejection, relationship initiation, rewards, risk regulation, self-esteem

> Where there is desire, there is gonna be a flame,
> Where there is a flame, someone's bound to get burned.
>
> Lyrics from *Try* (Busbee & M. West)

The song lyrics quoted above will surely resonate with anyone who has ever sought to initiate a new romantic relationship because they poetically reflect a fundamental truth about romance: To reap rewards like connection and emotional intimacy, sex, and belonging (e.g., Aron, Norman, Aron, McKenna, & Heyman, 2000; Impett, Muise, & Peragine, 2013; Walton, Cohen, Cwir, & Spencer, 2012), one must also face the threat of rejection and social pain (e.g., MacDonald & Leary, 2005; Murray, Holmes, & Collins, 2006). Therefore, potential suitors must often decide whether they are going to pursue a new romantic relationship that offers valuable social rewards or forego an initiation opportunity to protect themselves from the costly "burn" of rejection.

Interpersonal risk-regulation theory suggests that global self-esteem helps people to resolve this and other interpersonal dilemmas (e.g., Murray & Holmes, 2011; Murray et al., 2006). Specifically, a large body of research suggests that self-esteem determines affective, cognitive, and behavioral responses within *socially risky* situations that afford both social rewards and costs (e.g., Bernichon, Cook, & Brown, 2003; Cavallo, Fitzsimons, & Holmes, 2009; Heimpel, Elliot, & Wood, 2006; Jaremka, Bunyan, Collins, & Sherman, 2011; Lemay & Clark, 2009; Murray & Holmes, 2011; Stinson et al., 2012; Wood & Forest, 2011). The context of relationship initiation is an excellent example of a socially risky situation because it affords both the rewarding opportunity to form a new romantic connection and the costly possibility of rejection. As in other social contexts, social risk causes lower self-esteem individuals (LSEs) to forego opportunities for increased closeness in the interest of reducing the likelihood of social pain during relationship initiation, but it causes higher self-esteem individuals (HSEs) to blithely pursue opportunities to increase closeness with social partners. For example, when meeting a possible romantic partner for the first time—a high-risk social context—LSEs adopt a cautious, passive, and inhibited interpersonal style that allows them to remain aloof from a potentially hurtful social interaction, whereas HSEs adopt a bold, active, and expressive style that maximizes their odds of successfully forming a new relationship (e.g., Cameron, Stinson, Gaetz, & Balchen, 2010; Cameron, Stinson, & Wood, 2013; Stinson, Cameron, Hoplock, & Hole, 2014).

Because most social interactions afford both rewards and costs, it may seem that LSEs are characteristically socially cautious and HSEs are characteristically socially bold (e.g., Baumeister, Tice, & Hutton, 1989). However, a careful survey of interpersonal risk-regulation studies that include experimental manipulations of social risk and measurements of *connection motivation*—the motivation to achieve closeness and intimacy with relationship partners (Murray et al., 2006)—reveals an interesting crossover pattern of effects that has been ignored to date, even by the very researchers reporting the findings.

For example, self-esteem is positively associated with perceptions of acceptance from a potential romantic partner when risk is high, a result suggesting a positive association between self-esteem and connection motivation (Cameron et al., 2010, study 1). However, this pattern is reversed when risk is experimentally reduced. Similarly, men with higher self-esteem use more direct relationship-initiation behaviors than men with lower self-esteem when risk is high; however, when risk is low, this pattern is reversed and men with lower self-esteem become more direct than those with higher self-esteem (Cameron et al., 2013, study 2). Similar reversals in the association between self-esteem and connection motivation as a function of social risk have been observed in ongoing romantic relationships and in relationships with parents or friends (e.g., Cavallo, Holmes, Fitzsimons, Murray, & Wood, 2012; Gaucher et al., 2012; Murray, Derrick, Leder, & Holmes, 2008). Furthermore, the form of these crossover interactions reveals that variations in social risk influence *both* LSEs' and HSEs' connection motivation. Removing risk increases LSEs' connection motivation (Cameron et al., 2010, study 4; Cavallo et al., 2012, study 2), whereas recent experiments have documented declines in HSEs' connection motivation when risk is reduced or eliminated (e.g., Cavallo et al., 2012, study 2; Gaucher et al., 2012, study 4; Murray et al., 2008, experiment 2).

These recent results suggest a complex association between social risk and self-esteem during relationship initiation (and in other relationship contexts as well) that is not predicted or explained by current theoretical models and thus deserves empirical attention. We suggest that the first step toward understanding these complexities involves disentangling the dual affordances of socially risky contexts. For example, either plummeting rewards or skyrocketing costs on their own might be primarily responsible for self-esteem differences in connection motivation across high- and low-risk contexts. It is also possible that HSEs and LSEs are motivated by different affordances. Unfortunately, a review of the literature does not allow us to tease apart these possibilities.

To date, interpersonal risk-regulation research, including our own research examining relationship-initiation processes, has not aimed to isolate the independent effects of rewards and costs. Thus, prior research typically manipulates both affordances (either purposely or inadvertently) across high- versus low-risk experimental conditions (Cameron et al., 2010, 2013; for other relational contexts, see also Anthony, Holmes, & Wood, 2007, study 5; Anthony, Wood, & Holmes, 2007; Cavallo et al., 2009; Gaucher et al., 2012, study 3). For example, in the high-risk condition of one experimental paradigm that has been used to study relationship initiation, participants have the chance to meet an attractive, preferred-sex interaction partner face-to-face following an initial videotaped interaction, but only if the interaction partner desires to meet the participant face-to-face (e.g., Cameron et al., 2010, 2013). In the low-risk condition of this paradigm, there is no possibility of meeting the interaction partner after the videotaped interaction. In other words, potential rewards (i.e., acceptance) and costs (i.e., rejection) may both be experienced in the high-risk condition, whereas neither rewards nor costs are possible in the low-risk condition. Objective raters validated that this latter social context is perceived to be less "risky" (by participants' own definition) than the high-risk context, but it achieves that status by reducing *both* social rewards and social costs relative to the high-risk experimental condition. Such confounding of rewards and costs across experimental

conditions means that we cannot determine from the existing literature whether situational changes in costs, rewards, or both are responsible for situational shifts in connection motivation during relationship initiation—or *relationship-initiation motivation*—as a function of self-esteem.

Further complicating our ability to draw upon prior research to determine the independent effects of rewards and costs during relationship initiation is the fact that most interpersonal risk-regulation research has been conducted within the context of ongoing romantic relationships. The baseline level of risk in a satisfying ongoing relationship is low because rewards outweigh costs within satisfying social bonds (e.g., Thibaut & Kelley, 1956). Thus, interpersonal risk-regulation research in that context typically manipulates risk by introducing costs into an otherwise low-risk social context (e.g., Cavallo et al., 2009; Murray et al., 2008). In contrast, the baseline level of risk present during relationship initiation is high because both rewards and costs are normatively quite salient in that context (for further discussion, see Cameron et al., 2010). Given such differences in baseline levels of risk, it is problematic to attempt to generalize results from the context of ongoing relationships to the context of relationship initiation. Therefore, additional research is needed to understand the observed crossover interaction between self-esteem and social risk during relationship initiation. The present research aims to fill this empirical gap in the literature.

Research goals and potential contributions

By concurrently examining the influence of social rewards and costs on social motivation during relationship initiation, the present research will contribute to an emerging close relationships literature attempting to bring together two previously independent bodies of research. Although social threats and rewards typically coexist in real life, researchers studying self-regulation within close relationships typically focus their attention on one affordance or the other (for a discussion, see Gere, MacDonald, Joel, Spielmann, & Impett, 2013). For example, as we described previously, interpersonal risk-regulation researchers usually study reactions to social threats within ongoing romantic bonds as a function of self-esteem (Jaremka et al., 2011). Yet by studying both affordances concurrently, attachment researchers have recently gained new insight into processes like relational ambivalence (MacDonald, Locke, Spielmann, & Joel, 2013), commitment (Gere et al., 2013), and intimacy (Spielmann, Maxwell, MacDonald, & Baretta, 2013) that elucidate the unique regulatory functions of the anxiety and avoidance branches of the attachment system. A similar approach to studying relationship investment shed light on the ways in which rewards and costs uniquely contribute to maladaptive attachments to past romantic partners (Spielmann, MacDonald, & Tackett, 2012). Thus, concurrently studying rewarding and costly social affordances, as we do in the present research, can yield empirically novel and theoretically generative results that provide a more complete and ecologically valid picture of close relationships processes.

Specifically, isolating the independent effects of rewards and costs during relationship initiation will allow us to clarify two theoretically important features of interpersonal risk regulation. First, we will be able to answer the question, "Does self-esteem predict motivational and behavioral responses to rewards or costs?" We can answer this

question by examining within-condition self-esteem effects in the experiments we report, which will allow us to determine whether self-esteem is *attuned* to rewards, costs, or both. Self-esteem is said to be attuned to a particular variable when the presence of that variable prompts individual differences in social self-regulation as a function of self-esteem (Anthony, Holmes, et al., 2007). For example, Anthony and colleagues demonstrated that feedback about social commodities (e.g., physical attractiveness) but not communal qualities (e.g., kindness) prompted individual differences in relationship-initiation motivation as a function of self-esteem, suggesting that self-esteem is attuned to social commodities and not communal qualities in a platonic relationship-initiation context. Similarly, if we observe differences between LSEs' and HSEs' relationship-initiation motivation when costs are made salient, but not when rewards are made salient or in a control condition, then we will conclude that self-esteem is attuned to costs but not rewards. Thus, documenting the attunement of self-esteem to social rewards and costs will allow researchers to more accurately predict *individual differences* in relationship-initiation motivation as a function of self-esteem within a particular relationship-initiation context. We will examine the attunement of self-esteem to social affordances in both experiments that we will report.

Second, we will be able to answer the question, "What type of social affordance is most motivating for LSEs and HSEs?" We can answer this question by examining condition effects for LSEs and HSEs within the experiments that we report, which will allow us to determine whether LSEs' and HSEs' relationship-initiation motivation is most strongly *activated* by rewards or costs. We suggest that a particular social affordance is activating for a group of people when the presence of that affordance in a given social context prompts *heightened* relationship-initiation motivation relative to a social context in which the affordance is absent or less salient. For example, if we observe that HSEs exhibit stronger relationship-initiation motivation following a rewards prime than following a control or costs prime, we will conclude that HSEs' relationship-initiation motivation is activated by rewards. Thus, documenting the activation of LSEs' and HSEs' relationship-initiation motivation in response to rewards and costs will allow researchers to more accurately predict *within-person differences* in relationship-initiation motivation across situations as a function of self-esteem. We will examine whether LSEs' and HSEs' relationship-initiation motivation is activated by rewards or costs in both experiments that we will present, but particularly in Study 1, which includes a control condition to establish LSEs' and HSEs' baseline relationship-initiation motivation during relationship initiation.

More generally, understanding both between-person and within-person differences in relationship-initiation motivation as a function of self-esteem and social affordances may help to explain *why* LSEs experience less close and less rewarding social relationships and experience more loneliness than HSEs (e.g., Hendrick, Hendrick, & Adler, 1988). Across a wide array of social contexts, HSEs' typical social motivation and behavior benefits their quality of social bonds, whereas LSEs' typical social motivation and behavior undermines their quality of social bonds (Murray et al., 2006). Moreover, such self-esteem differences are abundantly evident during relationship initiation (Cameron et al., 2010, 2013; Stinson et al., 2014; Stinson, Cameron, Wood, Gaucher, & Holmes, 2009; Stinson et al., 2012). In turn, high-quality social bonds, including romantic bonds, support personal well-being and health (Logel et al., 2014; Reis, Sheldon, Gable, Roscoe, & Ryan, 2000; Stinson

et al., 2008), and promote workplace productivity (Chiaburu & Harrison, 2008). Thus, a body of research seeking to understand how and why self-esteem influences social outcomes eventually could have meaningful implications for improving people's quality of social bonds and, therefore, their health and well-being. The present research represents one important step toward accomplishing these lofty goals.

Overview of the present research

In two experiments, we attempt to tease apart the influence of rewards and costs on relationship-initiation motivation. We focus on the context of relationship initiation, in part, because prior initiation research has revealed self-esteem-by-risk, crossover interactions predicting relationship motivations (e.g., Cameron et al., 2010, 2013). But we also focus on this context because relationship-initiation motivation and behavior are relatively understudied aspects of close relationships, perhaps due to the methodological challenges posed by studying behavior that is spontaneous, occurs during a very narrow window of time (Tran, Simpson, & Fletcher, 2008), and occurs in contexts that are difficult to observe (e.g., a house party; Eastwick & Finkel, 2008). Thus, to achieve our research goals, we borrow tools from the world of online dating to create experimental paradigms, specifically, creating video personals or video chat dating (e.g., www.vdateonline.com) and writing dating profiles (e.g., www.match.com). These are increasingly popular methods of relationship initiation (Madden & Lenhart, 2006, as cited in Sprecher, Schwartz, Harvey, & Hatfield, 2008), so our methods contain elements of real-world generalizability while also allowing very high levels of experimental control.

In both of the experiments that we will report, we hold constant the social context and then use priming methods to make social rewards or social costs salient. As with naturalistic primes for rewards and costs that are found throughout daily life (see Elliot, 2006), our priming methods inherently intertwine rewards with attaining desirable outcomes and costs with avoiding undesirable outcomes. More specifically, we use passive conceptual priming methods to bring to mind the concepts of rewarding and desired social outcomes or costly and undesirable social outcomes without alerting participants to the relation between the initial priming task and the subsequent relationship-initiation task (for a discussion of this method, see Bargh & Chartrand, 2000). We then assess participants' relationship-initiation motivation using a variety of dependent measures reflecting the desire to connect with, or become closer to, a potential romantic partner.

Attunement hypotheses. Based on prior interpersonal risk-regulation research in the domain of ongoing romantic relationships (e.g., Murray et al., 2008), we hypothesize that self-esteem will be positively attuned to social costs, such that HSEs will report stronger relationship-initiation motivation following a costs prime than LSEs (**H1**). Our hypotheses concerning the attunement of self-esteem to rewards are exploratory. Because HSEs are generally more approach oriented and reward sensitive than LSEs (e.g., Heimpel et al., 2006), it is possible that HSEs will report stronger relationship-initiation motivation than LSEs when rewards are made salient (**EH1a**). Yet self-esteem is negatively correlated with the need to belong (Leary, Kelly, Cottrell, & Schreindorfer, 2013), suggesting that social rewards like acceptance and belonging will be especially enticing for LSEs. Moreover, as

we detailed above, LSEs' relationship-initiation motivation can outstrip HSEs' motivation in high reward, low cost, contexts (e.g., Cameron et al., 2013). Thus, it is not unreasonable to propose that LSEs will exhibit stronger relationship-initiation motivation than HSEs when social rewards like acceptance and belonging are made salient (**EH1b**).

Activation hypotheses. Prior interpersonal risk-regulation research reveals that LSEs experience heightened connection motivation toward a romantic partner when rewarding states and outcomes are made salient (but unlike HSEs, LSEs often suppress the potentially risky behavioral expression of such connection goals; Murray et al., 2008). Therefore, we predict that LSEs' relationship-initiation motivation will be activated by social rewards, as evidenced by stronger relationship-initiation motivation in the rewards prime condition compared to other priming conditions (especially on non-behavioral dependent-measures; **H2**). Our hypotheses concerning the activation of HSEs' relationship-initiation motivation are exploratory. Because HSEs are generally approach oriented and reward sensitive (e.g., Heimpel et al., 2006), HSEs' relationship-initiation motivation may be activated by social rewards, as evidenced by stronger relationship-initiation motivation in the rewards prime condition compared to other priming conditions (**EH2a**). However, HSEs also exhibit much stronger relationship-initiation motivation when social risk is present than when it is absent (e.g., Cameron et al., 2010, 2013). Because socially risky contexts are high in social costs, it is also reasonable to propose that HSEs' relationship-initiation motivation will be activated by social costs, as evidenced by stronger relationship-initiation motivation in the costs prime condition compared to other priming conditions (**EH2b**).

Study 1

In our first experiment, we relied upon established paradigms for studying relationship initiation, priming rewards and costs, and assessing relationship-initiation motivation. Recall that the goal of the current research is to unpack and explain previously documented interpersonal risk-regulation effects during relationship initiation. By using methods and measures that have been used in the past to successfully document self-esteem differences in social motivation as a function of social affordances (i.e., social risk), we limit the possibility of false negatives due to poor study design choices or measures, and we will be able to directly compare and contrast our results with prior research findings.

Thus, in the present experiment, we use introductory videos created for a potential romantic partner as the method of relationship initiation (Cameron et al., 2010, 2013). Moreover, we use a previously validated word sort priming task to passively activate rewarding states and desirable outcomes (e.g., succeed, accomplish, achieve, triumph, gain, win, and thrive) or costly states and undesirable outcomes (e.g., fail, pain, mistake, setback, fiasco, defeat, and disappointing; see Lockwood, Jordan, & Kunda, 2002, experiment 2; Murray et al., 2008, experiment 4) that are relevant to the context of relationship initiation. Prior research has demonstrated that the abstract states and outcomes that are primed in this task do influence context-specific social motivation. Murray, Derrick, Leder, and Holmes (2008, experiment

4) demonstrated that the rewards prime caused people to more quickly associate their romantic partner with connectedness-promoting qualities on an implicit associations test, and Lockwood, Jordan, and Kunda (2002, experiment 2) demonstrated that both primes influence people's responses to social role models. Such effects are thought to occur because abstract, conceptual primes like the ones used in this word sort task are typically interpreted in light of the situational context in which priming occurs (see Bargh & Chartrand, 2000). By this logic, the abstract concepts we prime will be interpreted in light of the relationship-initiation context and thereby influence the salience of social rewards and costs during relationship initiation.[1] Indeed, to fail, make a mistake, succeed, or triumph are certainly social outcomes afforded by the context of relationship initiation.

Following the priming task, we assess participants' perceptions of specific behavioral acceptance cues from a potential romantic partner as the indicator of relationship-initiation motivation. Prior research has demonstrated that stronger relationship-initiation motivation biases individuals to perceive more behavioral acceptance cues (e.g., smiling and maintaining eye contact) from a potential romantic partner (see Cameron et al., 2010; Stinson et al., 2014). This bias is thought to occur because people project their own social motivation onto their interaction partner. Such *social projection* is a relatively automatic and primitive psychological process and has consistently been observed for a variety of motivations in a variety of social contexts (e.g., Krueger, 1998, 2007). Thus, in the context of relationship initiation, stronger relationship-initiation motivation predicts greater perceived acceptance cues from a potential romantic partner because people project their own relationship-initiation motivation onto their partner (i.e., "I really want to get to know you, so you must want to get to know me!"). Unpublished results from a recent experiment that our lab conducted supports this account: Participants who reported that they were more interested in spending time with their preferred-sex interaction partner outside of the lab session also perceived that their partner more often exhibited specific behavioral acceptance cues like smiling, acting friendly, and maintaining eye contact ($r = .33$, $p < .001$, $N = 113$; Cameron, Stinson, & Hole, 2014). Therefore, in the present experiment, we test our confirmatory and exploratory hypotheses concerning attunement and activation by examining self-esteem differences in perceived acceptance cues from a potential romantic partner as a function of primed rewards and costs.

Method

Participants

We conducted a power analysis to estimate the sample size required to detect the critical Self-Esteem × Condition interaction. Prior research using the same experimental paradigm to examine self-esteem differences in perceived acceptance cues as a function of social risk observed medium-sized interaction effects, Cohen's $f^2 = .10$ (Cameron et al., 2010, observed power in studies 2 and 5). Based on this, our power analysis suggested that we would need 82 participants to detect a similar magnitude interaction effect

in the present research with a power level of .80 ($\alpha = .05$). We were able to recruit a sample of 70 single, heterosexual, introductory psychology students (38 women and 32 men; $M_{age} = 18.94$, $SD_{age} = 1.67$) who received partial course credit in appreciation for their time. This sample size yielded a power of .73 to detect an interaction effect of the anticipated magnitude.[2]

Procedure

At individual lab sessions, participants first completed a preliminary survey including Rosenberg's (1965) Self-Esteem Inventory ($\alpha = .88$), demographic questions (e.g., age, relationship status, and gender), and filler items to disguise our focus on self-esteem. Next, participants were informed that there was an opposite-sex participant in the adjacent lab room (i.e., their *partner*), and the participants and their partner would be communicating with one another via video camera. Participants were informed that they would first introduce themselves to their partner by speaking into a video camera in the participants' own lab room. The partner would then watch the participants' introductory tape and film a response, which the participants would watch. Finally, participants were informed that after filming their own introductory video and watching their partner's response, the participants would have the opportunity to meet their partner if their partner desired to meet.

After learning about the interaction task, participants completed a word sort task that manipulated the salience of rewards and costs. Participants were randomly assigned to one of three experimental conditions. In all three conditions, participants were asked to categorize lists of words into groups of similar items (see Murray et al., 2008, experiment 4). All three lists included 24 filler words pertaining to cooking (e.g., roast) and child care (e.g., baby), but the lists included one of three sets of 14 target words. In the *costs prime condition*, the target words reflected abstract negative outcomes or aversive states that are applicable to relationship initiation (e.g., fail, pain, mistake, setback, fiasco, defeat, and disappointing). In the *rewards prime condition*, the target words reflected abstract positive outcomes or reward states that are applicable to relationship initiation (e.g., succeed, accomplish, achieve, triumph, gain, win, and thrive). In the *control prime condition*, the target words were music-related nouns (e.g., flute and opera).

After completing the word sort task, participants completed a 5-min computerized task unrelated to the present research.[3] Participants then completed a second word sort task, consistent with their assigned condition, to bolster the strength of the prime. Target words were the same for all three conditions, but the 24 filler words pertained to plants (e.g., tree) and furniture (e.g., chair). Immediately after completing the second word sort, participants filmed their introductory video in which they discussed seven general conversation topics (e.g., "What is your dream job?").[4] Then participants watched a response from their interaction partner, which was actually a prerecorded videotape of a very warm and accepting, attractive opposite-sex confederate (see Cameron et al., 2010). Participants used a 5-point scale (1 = *not at all* and 5 = *most of the time*) to report their perception of eight verbal and nonverbal acceptance cues (i.e., smiling, eye contact, crossing legs, laughter, flirtatious glances, fixing hair, agreeing with something the participant said, expressing interest in meeting the participant) along with filler behaviors

Table 1. Results of hierarchical regression predicting perceived acceptance cues in Study 1.

	Perceived acceptance cues				
	β	CI	t	p	ΔR^2
Step 1 ($df = 63$)					.49
Sex	.70	[4.83, 8.20]	7.72	.000	
Step 2 ($df = 61$)					.01
SE	.09	[−.40, 1.09]	.93	.358	
Condition	−.05	[−1.35, .75]	−.57	.569	
Step 3 ($df = 60$)					.06
SE × Condition	−.26	[−2.19, −.41]	−2.93	.005	

Note. df = degrees of freedom; SE = self-esteem; CI = 95% confidence interval for the unstandardized parameter estimate; ΔR^2 = R-square change.

(e.g., cleared throat; derived from Cameron et al., 2010). Finally, participants were debriefed concerning the true purposes of the study and awarded their compensation.

Results and discussion

Five participants' data were excluded due to technical difficulties with the online survey tool used to collect self-report data (i.e., lost or slow Internet connection).

Prior research demonstrated that the female confederate objectively conveys more acceptance than the male confederate (Cameron et al., 2010). Thus, we controlled for participant sex (and thereby indirectly controlled for confederate sex) in the analyses that follow. Participant sex did not moderate the results we report.

Following Cameron, Stinson, Gaetz, and Balchen (2010), ratings of observed acceptance cues were summed to create a *perceived acceptance cues* index ($M = 19.91$ and $SD = 4.68$). We regressed perceived acceptance cues onto Step 1: dummy-coded sex (0 = *female* and 1 = *male*); Step 2: mean-centered self-esteem ($M = 6.90$ and $SD = 1.18$) and effect-coded priming condition (−1 = *rewards prime*, 0 = *control prime*, and 1 = *costs prime*); and Step 3: the interaction between self-esteem and priming condition. Results are presented in Table 1, and the results revealed the anticipated main effect of sex along with the anticipated interaction between self-esteem and priming condition, which is depicted in Figure 1.[5]

When decomposing this interaction, first we tested our attunement hypotheses by examining the association between self-esteem and perceived acceptance cues within each experimental condition. Self-esteem was unrelated to perceived acceptance cues in the control prime condition, $\beta = -.01$, $t < 1$. However, LSEs perceived more acceptance cues than HSEs in the rewards prime condition, $\beta = -.21$, $t(60) = -3.46$, $p = .001$, and HSEs perceived more acceptance cues than LSEs in the costs prime condition, $\beta = .42$, $t(60) = 6.71$, $p < .001$. These results suggest that self-esteem is positively attuned to social costs (H1) but negatively attuned to social rewards (EH1b).

Next, we tested our activation hypotheses by examining condition effects for LSEs and HSEs. LSEs' perceived acceptance cues varied across experimental conditions, $\beta = -.32$,

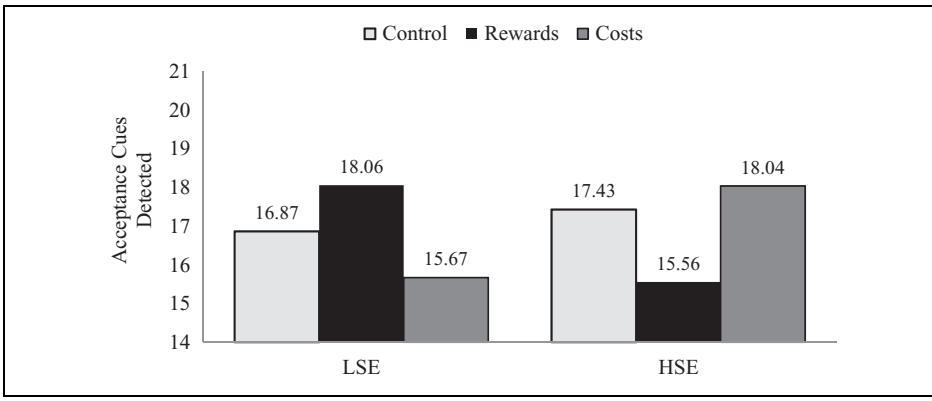

Figure 1. Acceptance cues detected as a function of self-esteem and priming condition in Study 1. HSEs = higher self-esteem individuals; LSEs = lower self-esteem individuals.

$t(60) = -2.07$, $p = .042$. Compared with the control condition (0), LSEs perceived the same level of acceptance cues in rewards prime condition (−1), $\beta = -.06$, $t < 1$, and tended to perceive fewer acceptance cues in the costs prime condition (1), $\beta = -.32$, $t(60) = -1.79$, $p = .080$. LSEs perceived more acceptance cues in the rewards prime condition than in the costs prime condition, $\beta = -.36$, $t(60) = -2.72$, $p = .008$. These results suggest that LSEs' relationship-initiation motivation is activated by social rewards (H2), such that LSEs exhibit their strongest relationship-initiation motivation when rewards are made salient. HSEs' perceived acceptance cues also varied across experimental conditions, $\beta = .44$, $t(60) = 2.78$, $p = .008$. Compared with the control condition (0), HSEs perceived fewer acceptance cues in the rewards prime condition (−1), $\beta = .23$, $t(60) = 2.21$, $p = .031$, but perceived more acceptance cues in the costs prime condition (1), $\beta = .30$, $t(60) = 2.10$, $p = .040$. Moreover, HSEs perceived more acceptance in the costs priming condition than in the rewards priming condition, $\beta = .55$, $t(60) = 4.30$, $p < .001$. These results suggest that HSEs' relationship-initiation motivation is activated by social costs (EH2b), such that HSEs exhibit their strongest relationship-initiation motivation when costs are made salient.

Taken together, these results suggest that self-esteem is attuned to both rewards and costs and that LSEs are most strongly motivated by rewards but HSEs are most strongly motivated by costs. However, the present results should be interpreted with caution due to the relatively small sample size in this experiment. In particular, the magnitude of the observed effect sizes could be overestimated due to our small sample size (e.g., Lakens & Evers, 2014), and so this pattern of results should be replicated with a larger sample size to gain a more accurate estimate of effect sizes. We will attempt to accomplish this goal by conceptually replicating these findings in our next experiment.

Study 2

In our second experiment, we make rewards or costs salient with a real-world priming method that is novel to the field. Rather than priming abstract states that will be

interpreted in light of the relationship-initiation context, as in Study 1, the primes we use in the present experiment explicitly concern relationship initiation. Participants rank order their interest in five relationship self-help book titles that emphasize either achieving rewarding relationship outcomes (e.g., *The Soulmate Secret: Manifest the Love of Your Life with the Law of Attraction*) or avoiding costly relationship outcomes (e.g., *How to Avoid Falling in Love with Mr. or Miss Wrong*) in one's romantic relationships.[6] As in Study 1, these book title primes inherently intertwine rewards with attaining desirable outcomes and costs with avoiding undesirable outcomes and are intended to passively activate the concepts of social rewards and costs.

We focus on written dating profiles as the method of relationship initiation (e.g., www.match.com and other Internet dating websites) and utilize both self-report and behavioral indicators of relationship-initiation motivation. Participants choose topics of conversation for a potential first date that vary in the extent to which they foster intimacy between partners and report their own dissatisfaction being single and their interest in forming a new romantic relationship in the coming months. Moreover, observers code participants' written profiles for expressivity, positive tone, and disclosure of personal values, which are interpersonal behaviors related to warmth that reflect social connection motivation (e.g., Gaucher et al., 2012). Coders also rate participants' focus on finding a good partner as an indicator of an approach-related strategy of relationship initiation, and rate participants' focus on avoiding a bad partner as an indicator of an avoidance-related strategy of relationship initiation. This design allows us to test our attunement and activation hypotheses using a novel paradigm and new measures of relationship-initiation motivation. Based on the results of Study 1, we expect to observe that self-esteem is positively attuned to social costs (H1) but negatively attuned to social rewards (EH1b). Moreover, we expected that LSEs' relationship-initiation motivation will be activated by rewards (H2), whereas HSEs' relationship-initiation motivation will be activated by costs (EH2b).

We also extend Study 1 by exploring whether participants' relationship-initiation behavior in their dating profiles influences coders' ratings of the overall attractiveness of participants' profiles. In this exploratory analysis, we test whether self-esteem differences in relationship-initiation behavior as a function of social affordances have downstream social consequences for the potential success of participants' relationship-initiation attempts.

Method

Participants

Once again, we conducted a power analysis to estimate the sample size required to detect the critical Self-Esteem × Condition interaction. Our power analysis suggested that we would need 81 participants to detect a medium effect size of $f^2 = .10$ with a power level of .80 ($\alpha = .05$). We were able to recruit 114 single, heterosexual, introductory psychology students (69 women and 45 men; $M_{\text{age}} = 19.10$ years, $SD_{\text{age}} = 2.05$), which yielded a power level of .92 to detect effects of the anticipated magnitude. Once again, participants received partial course credit in appreciation for their time.

Procedure

This study was conducted online; participants completed the questionnaire on their own time on their own computers.

Participants first completed the preliminary survey as described in Study 1. Then participants rank ordered five dating advice book titles from 1 (*the most interesting*) to 5 (*the least interesting*). This task constituted our experimental prime of rewards and costs. In the *rewards titles* condition, participants rank ordered five dating advice book titles highlighting obtaining social rewards: (1) *Love in 90 Days: The Essential Guide to Finding Your Own True Love*; (2) *Getting the Love You Want*; (3) *How to Talk to Anyone: 92 Little Tricks for Big Success in Relationships*; (4) *Become Your Own Matchmaker: 8 Easy Steps for Attracting Your Perfect Mate*; and (5) *The Soulmate Secret: Manifest the Love of Your Life with the Law of Attraction*. In the *costs titles* condition, participants rank ordered five dating advice book titles highlighting avoiding social costs: (1) *How to Avoid Falling in Love with Mr. or Miss Wrong*; (2) *How to Spot a Heartbreaker Before You Get Involved*; (3) *Emotional Unavailability: Recognizing it, Understanding it, and Avoiding Its Trap*; (4) *Being Too Nice: Stop Being Manipulated and Abused – and Start Standing Up for Yourself*; and (5) *Safe People: How to Avoid Relationships that are Bad for You*. Book titles in both conditions were real book titles selected from a pool of 39 books available at an online bookstore, but the book titles were modified to eliminate gendered language. For example, "How to Spot a Dangerous Man Before You Get Involved" was adapted to "How to Spot a Heartbreaker Before You Get Involved". Book titles were chosen because 15 research assistants rated them highest (i.e., rewards titles; $M = 6.78$ and $SD = .51$) or lowest (i.e., costs titles; $M = 1.78$ and $SD = 1.88$) on a 7-point scale indexing relationship affordances (1 = *focused on avoiding bad outcomes* and 7 = *focused on obtaining good outcomes*).

After exposure to the prime, participants imagined that they were enrolling in an online dating service, and as part of their enrollment, they wrote a dating profile including a self-description and a desired-partner description. Then participants imagined going on a first date and selected from a list of 18 potential conversation topics the five questions that they would like to ask their date. The list of possible conversation topics included nine small talk questions (e.g., "Where did you go to high school? What was your high school like?") and nine closeness-generating questions (e.g., "If a crystal ball could tell you the truth about yourself, your life, the future, or anything else, what would you want to know?"; Aron, Melinat, Aron, Vallone, & Bator, 1997). The number of closeness-generating questions was summed to yield participants' *intimacy of conversation topics* score. Next, participants indicated the strength of their *desire to initiate a new relationship* in the coming months (1 = *Not at all*, 5 = *Moderately*, and 9 = *Extremely*) and reported their degree of satisfaction being romantically single (1 = *Not at all satisfied*, 4 = *Neutral*, and 7 = *Very satisfied*; reverse coded for analyses, yielding a *dissatisfaction being single* variable). Then participants indicated their agreement with the following statement: "I took breaks from the survey to do other things (e.g., check my email, answer the phone)" (*Yes* or *No*). Finally, participants were debriefed concerning the true purposes of the study.

Coding participants' dating profiles. Three independent coders who were blind to participants' self-esteem and experimental condition used a 7-point scale (1 = *not at all* and 7 = *extremely*) to rate participants' dating profiles for overall positive tone, expressivity, and disclosure of personal values. Ratings of all three variables were averaged within coders and then between coders to yield a reliable *expressivity* index ($\alpha = .74$). Coders also used the same scale to rate participants' *focus on finding a good partner* ($\alpha = .65$) and *focus on avoiding a bad partner* ($\alpha = .81$). In a second coding session, the same three coders used 9-point scales (1 = *positive trait* and 9 = *negative trait*) to rate their impressions of participants' profiles on four dimensions reflecting interpersonal attraction, namely, likeable–unlikeable, interesting–dull, inviting–uninviting, and warm–cold. Items were rescaled so that higher scores reflected more positive impressions and then averaged within coders and then between coders to yield a reliable index of *profile attractiveness* ($\alpha = .73$). Coders also recorded the word count of participants' profiles.

Results and discussion

Data for 11 participants were excluded because they indicated that they took breaks from the survey to do other things (e.g., check e-mail and answer the phone), which may have undermined the effectiveness of our experimental primes.

Preliminary analyses

Variables assessed, their means and standard deviations, and the zero-order correlations among variables are presented in Table 2.

Preliminary analyses indicated that sex did not moderate any of the results that follow, so we excluded this variable from our analyses. Main effects of sex did emerge such that women were more focused on finding a good partner, had more attractive profiles, and were more dissatisfied being single than men, all $p < .05$. Controlling for these effects did not alter the results we report.

Dating profiles ranged between 6 and 317 words in length ($M = 74.68$ and $SD = 52.43$), and profile length did not vary as a function of self-esteem, condition, or the interaction between variables. Highly expressive profiles were much longer than inexpressive profiles, $r = .68$, $p < .001$, but word count did not explain the associations between expressivity and other variables reported in Table 2; the exception being that focus on avoiding a bad partner was no longer associated with expressivity when word count was controlled, $r = -.15$, $p = .139$. Moreover, word count did not explain the Self-Esteem × Condition effects that we will describe shortly. Thus, it appears that expressive profiles were not only longer than inexpressive profiles, but they also included more meaningful and attractive content, as evidenced by the associations reported in Table 2.

To illustrate, highly expressive profiles often included the participants' name and other personal details, like hobbies or future career goals. Many expressive profiles mentioned close relationships with friends and family, such as "I enjoy being in the company of family and friends." Highly expressive profiles were also sprinkled with unique and identifying tidbits of information. For example, one highly expressive profile mentioned jogging in the park with her dog as a favorite pastime and specifically mentioned the dog's name and

Table 2. Variables assessed in Study 2, their means and standard deviations, and zero-order correlations among variables.

	M	*SD*	2	3	4	5	6	7	8
Global self-esteem	6.92	1.33	.11	.03	.00	.16	−.08	.08	−.08
Profile expressivity	4.40	1.03	—	.71**	.49**	.21*	.28*	.08	−.06
Profile attractiveness	6.95	0.95	—	—	.49**	.17	.21*	.10	−.08
Focus on finding a good partner	6.26	0.68	—	—	—	−.16	.22*	.19†	−.04
Focus on avoiding a bad partner	1.36	0.87	—	—	—	—	.01	−.08	−.08
Intimacy of conversation topics	2.63	1.17	—	—	—	—	—	.02	−.05
Desire to initiate new relationship	6.27	2.27	—	—	—	—	—	—	.29**
Dissatisfaction being single	3.74	1.58	—	—	—	—	—	—	—

†$p = .063$; *$p < .05$; **$p < .01$.

wintertime jogging attire. In another highly expressive profile, the participant disclosed that he can be shy but warms up quickly over time. In contrast, inexpressive profiles were very short and primarily consisted of a generic listing of socially desirable traits. For example, two inexpressive profiles read (in full), "funny, kind, down to earth" and "Open-minded, caring, good sense of humor, well-educated." Similar characteristics differentiated profiles that were high and low in focus on finding a good partner. Profiles rated highly on this variable were longer that profiles rated low on this variable, $r = .40$, $p < .001$, and mentioned many unique positive traits and qualities that the participant desired in a date. For example, "I would like to find someone who has the same passion for history and travelling." As with inexpressive profiles, profiles that scored low in focus on finding a good partner consisted of short, generic listings of traits. Profiles that were rated high on focus on avoiding a bad partner were also longer than profiles rated low on this variable, $r = .45$, $p < .001$, but specifically included many "not" statements, like, "I am not looking for someone who is crazy religious," and "[I want someone] outgoing, but not someone with a big ego."

As reported in Table 2, participants who were more expressive in their profiles were also more focused on finding a good partner and avoiding a bad partner (but remember this latter association was eliminated when word count was controlled), and they chose more intimate topics of conversation with a future potential date. Moreover, coders were most attracted to expressive profiles that focused on finding a good partner, and people with more attractive profiles selected more intimate topics of conversation. Taken together, these preliminary results suggest that participants' relationship-initiation motivation was systematically evident in their dating profiles and self-reports.

Main analyses

We conducted a series of hierarchical regressions in which each of the four coder-rated variables (i.e., profile expressivity and attractiveness, focus on finding a good partner, focus on avoiding a bad partner) and each of the three participant-rated variables (i.e., intimacy of conversation topics, desire to initiate a relationship, and dissatisfaction being single) were regressed onto Step 1: mean-centered self-esteem and dummy-coded condition (0 = *rewards*, 1 = *costs*); and Step 2: the interaction between self-esteem and

priming condition. The results of these regressions are presented in Tables 3 and 4, and example interactions for observer-rated and participant-rated variables are depicted in Figure 2. Furthermore, simple effects testing (Aiken & West, 1991) decomposing the statistically significant interactions between self-esteem and condition are presented in Table 5.

Once again, the results in Tables 3 to 5 speak to both our attunement and activation hypotheses and replicate the results of Study 1. The general pattern of results across variables suggests that self-esteem is negatively attuned to social rewards (supporting EH1b), such that LSEs exhibited stronger relationship-initiation motivation than HSEs when rewards were made salient. This effect was most apparent in the intimacy of participants' chosen conversation topics and in their dissatisfaction being single. In contrast, the general pattern of results revealed that self-esteem is positively attuned to social costs (supporting H1), such that HSEs exhibited stronger relationship-initiation motivation than LSEs when costs were made salient. This effect was most apparent in participants' profile expressivity and stated desire to initiate a new relationship, but the data also trended in the same direction for participants' focus on finding a good partner and the intimacy of participants' chosen topics. Moreover, as in Study 1, LSEs generally exhibited stronger relationship-initiation motivation in the rewards condition than in the costs condition, results that lend additional support to H2 concerning the activation of LSEs' relationship-initiation motivation by social rewards. In contrast, HSEs exhibited stronger relationship-initiation motivation in the costs condition than in the rewards condition, results that once again support EH2b concerning the activation of HSEs' relationship-initiation motivation by social costs.

Exploratory analyses: Mediated moderation

Interpersonal risk-regulation research has reliably demonstrated that LSEs' and HSEs' preferred motivational and behavioral styles have meaningful consequences for the quality of their social bonds (e.g., Murray et al, 2006). For example, HSEs prefer a bold and direct style of relationship initiation that is more likely to be successful than LSEs' more cautious and indirect style (e.g., Cameron et al, 2010; Stinson et al., 2014). Therefore, in the present experiment, it is possible that self-esteem differences in relationship-initiation behavior as a function of social affordances also predict the success of participants' relationship-initiation attempts. More specifically, we tested the hypothesis that self-esteem and condition interact to predict dating profile content, which, in turn, predicts profile attractiveness (i.e., Self-Esteem × Condition → profile expressivity and focus on finding a good partner → profile attractiveness). Such a model reflects *mediated moderation* (e.g., Morgan-Lopez & Mackinnon, 2006; Muller, Judd, & Yzerbyt, 2005), whereby paths a_1 and a_2 from the predictor variable (i.e., self-esteem) to the mediator variables (i.e., profile expressivity and focus on finding a good partner) are conditional upon the level of a moderator variable (i.e., book titles condition), but paths b_1 and b_2 from the mediators to the outcome variable (i.e., profile attractiveness) are unconditional. The results of the analyses testing this mediation model are presented in Figure 3, and we will detail the steps taken to obtain those results presently.

Table 3. Results of hierarchical regressions predicting coders' impressions of participants' dating profiles in Study 2.

	Profile expressivity				
Predictor	β	CI	t	p	ΔR^2
Step 1 ($df = 95$)					.03
SE	.11	[−.07, .24]	1.08	.281	
Condition	.13	[−.14, .69]	1.31	.239	
Step 2 ($df = 94$)					.07
SE × Condition	.33	[.11, .74]	2.66	.009	
	Profile attractiveness				
	β	CI	t	p	ΔR^2
Step 1 ($df = 95$)					.01
SE	.03	[−.12, .17]	.30	.663	
Condition	−.06	[−.49, .27]	−.58	.566	
Step 2 ($df = 94$)					.01
SE × Condition	.14	[−.13, .47]	1.12	.265	
	Focus on finding a good partner				
	β	CI	t	p	ΔR^2
Step 1 ($df = 95$)					.01
SE	.00	[−.10, .10]	.04	.967	
Condition	.11	[−.13, .42]	1.05	.297	
Step 2 ($df = 94$)					.05
SE × Condition	.29	[.03, .46]	2.27	.026	
	Focus on avoiding a bad partner				
	β	CI	t	p	ΔR^2
Step 1 ($df = 95$)					.03
SE	.17	[−.02, .24]	1.63	.107	
Condition	.03	[−.31, .40]	.27	.787	
Step 2 ($df = 94$)					.02
SE × Condition	−.17	[−.45, .09]	−1.33	.181	

Note. df = degrees of freedom; SE = self-esteem; CI = 95% confidence interval for the unstandardized parameter estimate; ΔR^2 = R-square change.

The first step in this specific mediated moderation analysis is to establish whether paths a_1 and a_2, which reflect the association between self-esteem and profile expressivity and the association between self-esteem and focus on finding a good partner, respectively, are moderated by the book titles manipulation. The results of the two regression analyses that tested these two moderated paths have already been described in Table 3 and indicate that the book titles manipulation indeed moderated the association between self-esteem and both proposed mediators. The second step of this mediated moderation

Table 4. Results of hierarchical regressions predicting participant-rated variables in Study 2.

	Intimacy of conversation topics				
Predictor	β	CI	t	p	ΔR^2
Step 1 ($df = 93$)					.01
SE	−.08	[−.25, .11]		.457	
Condition	.03	[−.41, .55]		.771	
Step 2 ($df = 92$)					.09
SE × Condition	.39	[.18, .89]		.003	
	Desire to initiate a new relationship				
Predictor	β	CI	t	p	ΔR^2
Step 1 ($df = 99$)					.01
SE	.08	[−.20, .48]		.427	
Condition	−.00	[−.91, .88]		.974	
Step 2 ($df = 98$)					.06
SE × Condition	.33	[.21, 1.55]		.011	
	Dissatisfaction being single				
Predictor	β	CI	t	p	ΔR^2
Step 1 ($df = 99$)					.01
SE	−.08	[−.33, .14]		.444	
Condition	−.04	[−.75, .50]		.702	
Step 2 ($df = 98$)					.06
SE × Condition	.32	[.12, 1.06]		.014	

Note. df = degrees of freedom; SE = self-esteem; CI = 95% confidence interval for the unstandardized parameter estimate; ΔR^2 = R-square change. Degrees of freedom vary due to missing data for some variables.

analysis is to test whether paths b_1 and b_2, which reflect the associations between profile expressivity and focus on finding a good partner, respectively, and profile attractiveness, are statistically significant controlling for all other variables in the model. To test these paths, we added both mediators to a new Step 3 of our earlier regression predicting profile attractiveness (see Table 3). As expected, profile expressivity (i.e., path b_1), $\beta = .66$, 95% confidence interval (CI) [.46, .75], $t(92) = 8.11$, $p < .001$, and focus on finding a good partner (i.e., path b_2), $\beta = .22$, 95% CI [.08, .52], $t(92) = 2.73$, $p = .008$, each independently predicted profile attractiveness. Together, these two characteristics of participants' dating profiles accounted for over half of the variance in profile attractiveness.

Finally, when we used Hayes' (2013) PROCESS macro for SPSS using 5,000 bootstrap samples to estimate the 95% bias-corrected CI of each indirect path, results revealed that the moderated indirect path through profile expressivity (i.e., the product of paths a_1 and b_1) was statistically significant, indirect path = .26, SE = .09, 95% CI [.08, .45], as was the moderated indirect path through focus on finding a good partner (i.e., the product of paths a_2 and b_2), indirect path = .07, SE = .04, 95% CI [.02, .18].

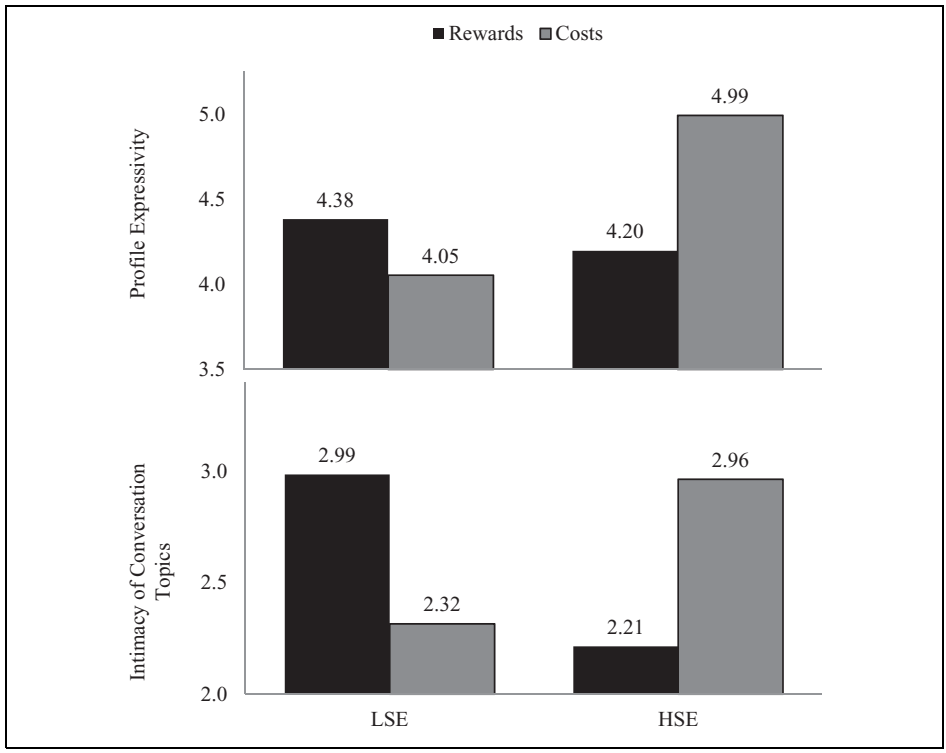

Figure 2. Top panel: Expressivity of participants' dating profiles as a function of self-esteem and book titles condition in Study 1. Bottom panel: Intimacy of participants' chosen conversation topics as a function of self-esteem and book titles condition in Study 1. HSEs = higher self-esteem individuals; LSEs = lower self-esteem individuals.

An alternative mediation model that reverses the mediator and outcome variables in Figure 3 is not supported by the data because the interaction term does not directly predict profile attractiveness (see Table 3).

When these mediated-moderation results are interpreted in light of the simple-effects results presented in Table 5, they indicate that HSEs' heightened expressivity and focus on finding a good partner in the costs prime condition resulted in HSEs' dating profiles being particularly attractive to coders in that experimental condition. These results conceptually replicate previous experiments documenting the success of HSEs' heightened relationship-initiation efforts in other high-cost social contexts (Cameron et al, 2010; Stinson et al., 2014), but we observed the present effects in a new and increasingly popular relationship-initiation domain, that is, written dating profiles.

One potential limitation of the present experiment was our choice to omit a control condition from our study design. Although it is often preferable to include a control condition in experiments, like we did in Study 1, it was difficult to conceive an appropriate control condition for the present experiment. Ideally, a control condition should hold

Table 5. Simple effects results for significant Self-Esteem × Condition interactions reported in Tables 3 and 4 for Study 2.

	β	CI	t	p
Profile expressivity				
SE effect in rewards condition	−.09	[−.26, .12]	−0.72	.472
SE effect in the costs condition	.45	[.10, .60]	2.79	.006
Condition effect for LSEs	−.15	[−.90, .29]	−1.03	.307
Condition effect for HSEs	.37	[.22, 1.31]	2.80	.006
Focus on finding a good partner				
SE effect in rewards condition	−.17	[−.22, .04]	−1.34	.183
SE effect in the costs condition	.30	[−.01, .32]	1.83	.071
Condition effect for LSEs	−.14	[−.58, .21]	−0.93	.355
Condition effect for HSEs	.32	[.06, .80]	2.33	.022
Intimacy of conversation topics				
SE effect in rewards condition	−.33	[−.52, −.06]	−2.52	.013
SE effect in the costs condition	.28	[−.03, .52]	1.81	.074
Condition effect for LSEs	−.28	[−1.29, .02]	−1.94	.056
Condition effect for HSEs	.31	[.09, 1.36]	2.28	.025
Desire to initiate a new relationship				
SE effect in rewards condition	−.03	[−1.01, .75]	−0.30	.770
SE effect in costs condition	.39	[.14, 1.18]	2.53	.013
Condition effect for LSEs	−.28	[−2.53, .04]	−1.93	.057
Condition effect for HSEs	.22	[−.17, 2.15]	1.69	.094
Dissatisfaction being single				
SE effect in rewards condition	−.28	[−.62, −.03]	−2.19	.031
SE effect in costs condition	.22	[−.10, .62]	1.43	.157
Condition effect for LSEs	−.30	[−1.84, −.05]	−2.09	.039
Condition effect for HSEs	.18	[−.26, 1.36]	1.35	.181

Notes. SE = self-esteem; HSEs = higher self-esteem individuals; LSEs = lower self-esteem individuals; CI = 95% confidence interval for the unstandardized parameter estimate.

constant the essential characteristics of the situation but eliminate a proposed, causal element. In Study 1, such a control condition was possible because the social context of relationship initiation was held constant across all three conditions, and then abstract concepts (i.e., rewards, costs, or neutral) were added to that constant social context. Yet the social context and the primes in the present experiment were inextricably linked. The very subject of the book titles was romantic relationships, simply framed in a rewarding or costly manner. Thus, potential control conditions that eliminated the book-ranking task or substituted nonsocial book titles were undesirable because they would actually manipulate two variables, namely, social affordances and the general salience of romantic

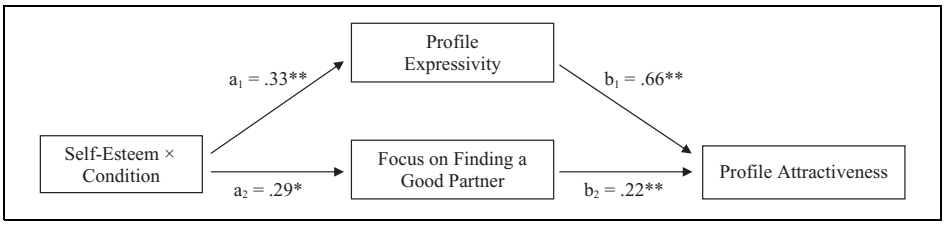

Figure 3. Path model depicting the associations among self-esteem, book titles condition, dating profile characteristics, and dating profile attractiveness in Study 2. *Note.* **p* < .05; ***p* < .01. Results were obtained from a series of hierarchical regression analyses described in the main body text. Path coefficients with *p* values greater than .05 are not depicted in the figure. Main effects of self-esteem and condition (not depicted) were also controlled in the model.

relationships. Furthermore, using neutral relationship-initiation book titles (i.e., books rated in the middle of the costs–rewards scale by research assistants) as a control condition was also problematic because self-esteem influences people's interpretations of ambiguous social stimuli. Specifically, HSEs are biased to see more acceptance than is objectively present, whereas LSEs are biased to see more rejection than is objectively present (e.g., Dandeneau & Baldwin, 2004).

To avoid these and other problems, interpersonal risk-regulation researchers often omit a "neutral" control condition from their experiments when the experimental task also serves to make romantic relationships generally salient (e.g., reading a scientific article about romantic relationships that induces upward or downward social comparisons; Cavallo et al., 2009; Murray, Pinkus, Holmes et al., 2011). Therefore, we followed suit in the present experiment. On balance, we felt this was the best choice for our experimental purposes, and the results we obtained by contrasting the rewards and costs conditions are meaningful and informative even without a truly neutral comparison group: Within-condition self-esteem effects demonstrated that self-esteem is positively attuned to costs and negatively attuned to rewards, and within-group condition effects demonstrated that HSEs are more motivated by costs than rewards and LSEs are more motivated by rewards than costs.

General discussion

Across two experiments studying different methods of relationship initiation, using different methods of manipulating the salience of rewards and costs, and assessing a variety of indicators of relationship-initiation motivation, our results suggest that global self-esteem regulates responses to both costs and rewards during relationship initiation. When social costs were made salient, HSEs exhibited stronger relationship-initiation motivation than LSEs, suggesting that self-esteem is positively attuned to social costs (H1). Such results mirror the typical self-esteem effects observed in "high-risk" conditions of previous relationship-initiation research (e.g., Cameron et al., 2010, 2013) and in high-risk social contexts more generally (e.g., Cavallo et al., 2012; Jaremka et al., 2011). This parallel suggests that high social costs may be primarily responsible for the oft-

observed positive correlation between self-esteem and relationship-initiation motivation in socially risky relationship-initiation contexts and perhaps in other social contexts as well. In contrast, when social rewards were made salient, LSEs exhibited stronger relationship-initiation motivation than HSEs, suggesting that self-esteem is negatively attuned to social rewards (EH1b). Such results mirror recent findings in "low-risk" conditions of interpersonal risk-regulation research (e.g., Cameron et al., 2010, 2013; Cavallo et al., 2012; Gaucher et al., 2012; Murray et al., 2008), suggesting that high social rewards may be primarily responsible for recently reported negative correlations between self-esteem and relationship-initiation motivation in low-risk relationship-initiation contexts and perhaps in low-risk social contexts more generally.

This complex pattern of the attunement of self-esteem to rewards and costs suggests a resolution to an empirical conflict in the field. Research examining the relational consequences of self-esteem is mixed, with some researchers concluding that self-esteem plays little role in actual social outcomes (e.g., Baumeister, Campbell, Krueger, & Vohs, 2003) and others claiming that self-esteem has a large influence on relational well-being due, at least in part, to self-esteem differences in motivational responses to risk (e.g., Murray et al., 2006). Our results demonstrate that the social-regulatory impact of self-esteem is highly context dependent. Without understanding the specific levels of rewards and costs afforded by a given situation, one cannot predict the influence that self-esteem will have on social motivation or interpersonal outcomes. Failing to account for situational affordances may explain the null effects that have been observed for self-esteem in some social interaction studies (e.g., Campbell & Fehr, 1990), and in life outcome studies more generally (Baumeister et al., 2003). Because self-esteem is attuned to rewards and costs in an opposing manner, if one collapses the present results across experimental conditions, there appears to be a null association between self-esteem and social motivation.

Our results also suggest that both LSEs and HSEs are responsive to situational differences in costs and rewards. Consistent with prior research, our results suggest that LSEs' relationship-initiation motivation is activated by social rewards (H2), and LSEs seem to suppress their relationship-initiation motivation when social costs are too high. In contrast, HSEs' relationship-initiation motivation is activated by social costs (EH2b). HSEs behave in a reactive manner, exhibiting higher relationship-initiation motivation when costs are made salient but lower relationship-initiation motivation when rewards are made salient. These results are unexpected, and the mechanisms behind HSEs' reactions should be explored by future researchers. Such an exploration is particularly warranted, given the results of Study 2 documenting the success of HSEs' heightened relationship-initiation behaviors in the costs prime condition. Understanding how and why HSEs respond so actively to the presence of social costs may provide unique insight into successful relationship-initiation attempts, information that would be valuable to both academic and popular psychologists.

Although the mechanisms behind the present results will need to be explored by future researchers, prior research suggests some potential explanatory processes. It is possible that certainty and the psychological drive for accurate self-knowledge (e.g., Sedikides, 1993) may underlie our effects. HSEs' high-perceived relational value bolsters their certainty of a positive outcome across interpersonal situations. Priming social costs may shake HSEs' social certainty (Stinson et al., 2010) and thus prompt

attraction to romantic targets (Whitchurch, Wilson, & Gilbert, 2011). Conversely, LSEs' low-perceived relational value causes them to anticipate rejection, so priming rewards may shake LSEs' certainty of rejection and prompt relationship-initiation motivation. It is also possible that self-esteem differences in challenge and threat responses to social costs explain our results. HSEs generally respond to adversity with a challenge response, whereby they marshal and direct their energy toward goal pursuit (Blascovich & Tomaka, 1996). To the extent that social costs heighten adversity, costs may prompt a challenge response for HSEs that, in turn, prompts active pursuit of their relationship-promotion goals. Making social rewards salient may decrease perceived adversity and thus fail to prompt a challenge response in HSEs, resulting in relatively lower levels of relationship promotion. In contrast, LSEs generally respond to adversity with threat responses, whereby they inhibit goal pursuit to avoid an anticipated failure (Blascovich & Tomaka, 1996). Therefore, social costs may prompt a threat response in LSEs, resulting in lower levels of relationship-initiation motivation. Future researcher should attempt to test these and other plausible social and psychological mechanisms to explain LSEs' and HSEs' opposing reactions to social affordances.

Thus, our results are theoretically generative because they raise important questions to be explored by future researchers, including question to be answered by applied psychologists and the popular psychology industry. For example, counselors and therapists interested in encouraging relationship-initiation attempts in the general population should consider the moderating influence of self-esteem, because making social rewards or costs salient in intervention materials may have different effects for LSEs and HSEs. Our results suggest that interventions or self-help books designed to promote relationship initiation should expose LSEs to reward-framed information and expose HSEs to cost-framed information, an idea that should be tested experimentally by future researchers. Unfortunately, this type of exposure may be unlikely to occur naturally due to self-esteem differences in regulatory fit (Higgins, 2005). HSEs' tendency to focus on the positive (e.g., Baumeister et al., 2003) and to favor approach motivation (Heimpel et al., 2006) will probably encourage HSEs to select reward-framed messages more readily, whereas LSEs will prefer costs-framed messages (e.g., differential exposure model; Bolger & Zuckerman, 1995). Such preferences could undermine both HSEs' and LSEs' relationship-initiation success and, ultimately, their well-being, because both groups likely favor messages that are least likely to motivate them during relationship initiation. Thus, we suggest that future research should attempt to create interventions that will shift people out of their "comfort zones" by encouraging them to perceive rewards and costs within their social worlds in a way that optimizes their relationship-initiation strategies and thus optimizes their social well-being.

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Authors' Note

Drs Stinson and Cameron contributed equally to this work.

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Notes

1. The word-sort prime may also influence relationship-initiation motivation indirectly by first activating higher order, generally rewarding or costly states that, in turn, influence relationship-specific states and behavior (e.g., Gable 2006).
2. This sample is smaller than we had hoped to obtain due to institutional and methodological limits on data collection at the university where this study was conducted. Specifically, it was difficult to recruit naive participants with the desired demographic characteristics from a subject pool that was also used by many other social psychologists conducting deception research. Moreover, we restricted data collection to a single semester to avoid potential cohort and experimenter effects. Although a smaller-than-ideal sample size can reduce statistical power (along with some other undesirable consequences; e.g., Lakens & Evers, 2014), statistical power can be increased without increasing sample size in the following ways (for a summary, see MacKinnon, 2013; McClelland, 2000): (1) use study designs that have a high degree of experimental efficiency and control (Cohen, 1962); (2) sample demographically homogenous participants (e.g., Funder et al., 2013); and (3) include appropriate control variables to decrease variance attributed to error (Cohen, 1988). Our first experiment meets each of these criteria: (1) We use rigorous and controlled experimental methods, and we use measures that have been validated in prior research (i.e., Cameron et al., 2010; Murray et al., 2008); (2) our sample is homogenous with respect to age, culture, and romantic relationship status; and (3) we will control for participants' sex in our analyses, which will account for approximately 50% of the variance in our dependent measure (see Cameron et al., 2010). Taken together, these characteristics of our study design and analysis suggest that our results can be scientifically informative despite our smaller-than-ideal sample size (see Funder et al., 2013).
3. The computerized task was a pilot study designed to validate a new measure of perceptions of acceptance. The task required participants to estimate the number of accepting, neutral, and rejecting faces presented very quickly in multi-face arrays (facial photos were obtained from Mark Baldwin, personal communication, October 16, 2008). Performance on the face array task did not influence the results that we report.
4. Unfortunately, we could not code participants' initiation behavior because participants' introductory videos were lost in a fire at the University of Manitoba.
5. The effect size of $f^2 = .14$ for the Self-Esteem $\times$ Condition interaction is larger than we anticipated based on prior research. Even with our smaller sample size of 65 participants, following exclusions due to technical problems during data collection, the observed power for this effect is .83 ($\alpha = .05$).
6. We will discuss our choice to omit a control condition in the present experiment in our Discussion section for this study.

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