Rejection Sensitivity and the Rejection–Hostility Link in Romantic Relationships

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ABSTRACT Rejection sensitivity is the disposition to anxiously expect, readily perceive, and intensely react to rejection. In response to perceived social exclusion, highly rejection sensitive people react with increased hostile feelings toward others and are more likely to show reactive aggression than less rejection sensitive people in the same situation. This paper summarizes work on rejection sensitivity that has provided evidence for the link between anxious expectations of rejection and hostility after rejection. We review evidence that rejection sensitivity functions as a defensive motivational system. Thus, we link rejection sensitivity to attentional and perceptual processes that underlie the processing of social information. A range of experimental and diary studies shows that perceiving rejection triggers hostility and aggressive behavior in rejection sensitive people. We review studies that show that this hostility and reactive aggression can perpetuate a vicious cycle by eliciting rejection from those who rejection sensitive people value most. Finally, we summarize recent work suggesting that this cycle can be interrupted with generalized self-regulatory skills and the experience of positive, supportive relationships.

Rejection from significant others and valued social groups has an enormous impact on people's feelings and behavior (Williams, 2001). One of the best-documented consequences of rejection is an increase in hostility and reactive aggression against others. However, not everyone shows the same intensity of reaction to the rejection experience. Explaining this variability was the impetus for our work on

rejection sensitivity, which we have conceptualized as the disposition to anxiously expect, readily perceive, and intensely react to rejection. The characterization of people who respond with intense anger to rejection as ''rejection sensitive'' has a long history in psychiatry. One of the best presentations of the phenomenon is included in *The Neurotic Personality of Our Time,* in which Karen Horney (1937) described a vicious cycle whereby anxiety about rejection leads people to respond with anger and rage to ''what is felt to be a rejection, but also to the anticipation of a rejection. The hostility provided . . . is an important factor in establishing a *vicious cycle* which is difficult to escape from'' (pp. 136–137).

In conceptualizing the rejection sensitivity (RS) cycle described by Horney, we have drawn on social cognition and—more recently—social neuroscience perspectives (Downey, Zaki, & Mitchell, 2008). In this paper, we summarize some of the work conducted using the RS model to explore the impact of this personality disposition on people's social interactions and close relationships. We particularly focus on hostility and reactive aggression in concert with the other articles of this special section.

We developed a dynamic, process-oriented model of RS to guide initial research in this area. Two assumptions serve as the foundation for this work. The first is that acceptance–rejection is a privileged dimension of information processing that reflects the fact that humans need each other for survival. Social connection supports both mental and physical well-being, and the threat of its withdrawal is perhaps one of the most effective ways by which human society induces its members to behave in ways deemed conducive to the common good. Thus, gaining acceptance and avoiding rejection are powerful motivational forces.

Attaining social connection is especially challenging because seeking acceptance entails subjecting oneself to the threat of rejection; people with whom we feel most connected have the power to inflict the most painful rejection on us. Thus, those individuals to whom attaining acceptance and avoiding rejection is most important and most challenging may be particularly likely to show apparently contradictory behavior toward significant others—behavior marked by extremes of attentiveness and accommodation, extremes of hostility and negativity, or extremes of withdrawal. When rejection is imminent, people concerned with rejection should try to avoid it as best they can, even at a personal cost. However, when rejection does

happen, they should respond with anger and hostility and a heightened wariness about approaching new relationships.

The second assumption on which the RS model is built is that rejection sensitivity is a product of our biopsychosocial history. That is, in conjunction with inherent biological reactivity to threat, we learn through experience to expect acceptance or rejection. The learned nature of rejection and acceptance expectations implies that rejection anxiety may be situation specific (Levy, Ayduk & Downey, 2001). That is, people may learn to expect rejection from certain individuals (e.g., one parent) or certain groups (e.g., peers at school), but not others (e.g., peers in one's neighborhood). We may also learn to expect rejection because of certain features of the self in some contexts but not in others (e.g., women in stereotypically male domains such as the physical sciences and math or young African-American men in relation to the police).

In conceptualizing rejection sensitivity, we sought an approach to personality that emphasized individual differences in cognitive–affective processes, that accounted for apparent incoherence in behavior across situations, and that allowed for personality change. Our conceptualization of rejection sensitivity thus draws on Mischel and Shoda's (1995) Cognitive–Affective Processing System (CAPS) framework, which is concerned with understanding how personality processes emerge in specific Person × Situation interactions. The approach asserts that an individual's behavior varies in a systematic and coherent manner across situations and does so in a way that reflects the individual's efforts to make sense of his or her experiences. The nature of this stable variability provides a window into the dynamics of personality.

In more specific terms, the CAPS framework (Mischel & Shoda, 1995) views behavior as mediated by a dynamic network of cognitive–affective units shaped by biopsychosocial history—including expectations, encoding biases, affects, self-regulatory goals, and competencies—that guide responses to triggering cues in specific situations. Such a system is intrinsically interactionist, and its behavioral expressions are reflected in stable, contextualized "if . . . then . . ." contingencies, or *personality signature*s. The questions of particular interest in our research concern why, when, and for whom does perceived rejection trigger hostility or reactive aggression. This conceptualization in turn, allows us to ask: (a) what are the specific situational features (both internal and external) that trigger this per-

sonality signature and (b) what cognitive–affective units mediate the characteristic *if . . . then* signature. Finally, the CAPS approach facilitates designing interventions aimed at breaking the pattern, both at the level of the triggering situations and their associated cognitions.

In this paper, we focus on the strong link between rejection and hostility and rejection and reactive aggression among people who are particularly high in RS. We first provide an overview of our RS model, the way in which the disposition is measured, and how RS is associated with a variety of interpersonal difficulties. We then consider how rejection sensitivity impacts the perception of potential cues to rejection, summarizing data on the perceptual biases shown by high RS people. With this in mind, we will describe some of the research looking at the rejection–hostility/aggression link among highly rejection sensitive people. We conclude with a brief description of work that suggests how the damaging effects of rejection sensitivity can be attenuated or avoided with self-regulatory competencies and through positive relationships with others.

THE RS MODEL: ACCOUNTING FOR INDIVIDUAL DIFFERENCES IN REJECTION-RELATED VULNERABILITIES

The RS model was initially developed to delineate how the message of rejection from significant others shapes people's thoughts, feelings, and behaviors in social situations with close others or novel social targets. These thoughts and feelings have direct implications for personal and interpersonal adjustment (Downey & Feldman, 1996). Reflecting the influence of interpersonal theories of personality and attachment theory (Bowlby, 1969, 1973, 1980; Erikson, 1950; Horney, 1937; Sullivan, 1937), the model proposes that, to the extent that individuals experience rejection during their formative years, they develop the anxious expectation that others will reject them.

People learn to associate rejection with certain situations and cues. Hence, these cues act as triggers that activate the anxious expectations of rejection. Rejection sensitive individuals are thought to be especially attentive to social threat cues and to have a lower threshold for reacting to them, jointly leading to more intense emotional reactions. This reactive predisposition is thought to lead to more pronounced expressions of anger and overt aggression, in turn creating a potential for a feedback loop that becomes a self-fulfilling
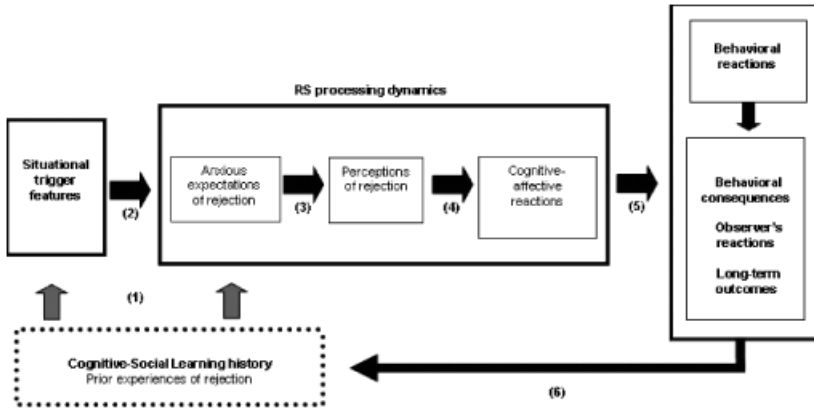
Figure 1
The rejection sensitivity model.

prophecy. That is, the RS dynamic, once acquired, often leads to its feared consequence—social rejection (e.g., Pietrzak, Downey, & Ayduk, 2005). Figure 1 outlines the key links in this conceptual model.

We view anxious expectations of rejection as the core component of the RS dynamic. The experiences that generate these anxious expectations of rejection include exposure to family violence, emotional neglect, harsh discipline, and conditional love by parents (Link 1 in Figure 1; Downey, Bonica, & Rincon, 1999; Downey, Khouri, & Feldman, 1997; Feldman & Downey, 1994). The data from retrospective and prospective studies support this link, justifying our broad definition of rejection as including overt or covert, active or passive, physical or emotional acts that communicate rejection.

The RS model further posits that people who anxiously expect rejection more readily perceive it in the ambiguously intentioned negative behavior of others, such as a new romantic partner acting cool and distant (Link 3 in Figure 1; Downey & Feldman, 1996; Downey, Freitas, Michaelis, & Khouri, 1998). The proposed reason is that the anxious expectations of rejection prepare people to selectively attend to cues of rejection and to experience the cues of rejection as more physiologically threatening.

Relative to people low in RS, then, people who are high in RS perceive more rejection given the same level of exposure to possible rejection cues, and they also respond more intensely to the same level of perceived rejection. The claim that perceived rejection elicits

intense negative reactions, principally reactive aggression, in high RS individuals is supported by the experimental and field studies that we summarize in this paper (Links 4 and 5 in Figure 1; Ayduk, Downey, Testa, Yen, & Shoda, 1999; Ayduk, Gyurak, & Luerssen, 2008). Finally, we have established that reactions that take the form of hostility or aggression in turn elicit actual rejection, reinforcing anxious expectations of rejection. In sum, the "sensitivity" portion of the model refers to (a) a heightened awareness of the possibility of rejection and a heightened vigilance for indicators of rejection as when someone enters a social situation on the lookout for signs of social rejection, (b) the ability to differentially detect signals of rejection versus other social signals (positive and negative) in the environment, and (c) sensitivity as an allergic reaction of sorts to rejection, which involves the ability to quickly mobilize one's defensive resources to respond very forcefully to the detection of threat. An analogy with the sensitivities of someone highly allergic to mosquitoes is apt. Such individuals are likely to enter watery areas on summer evenings highly vigilant for signals of mosquitoes. They are likely to be able to detect the sound and shape of mosquitoes and to differentiate them from other insects more readily than other people. When they do get bitten, their body's system overreacts to the threat, causing problems that are apparently disproportionate to the threat

Although hostility and reactive aggression are the focus of the work we summarize in this paper, the RS model predicts that people will sometimes exhibit other responses to rejection as well. For instance, partner-initiated breakups elicit depression among young women high in RS, but mutually initiated breakups do not (Ayduk, Downey, & Kim, 2001). Also, depending on questions of timing and the magnitude of the rejection, we presume that people high in RS sometimes respond to rejection with effortful attempts at salvaging the relationship (cf. Romero-Canyas et al., 2009 for more on these behaviors). Nevertheless, we assume the initial response to rejection cues is one very likely to involve anger and reactive aggression and we emphasize such outcomes here.

Conceptualizing RS as a Defensive Motivational System

Although at first glance RS appears to be a dysfunctional system that perpetuates personal and interpersonal difficulties, we view it as

a defensively motivated system. It results from rejection experiences and is intended to defend the self against further rejection while motivating the preservation of social connections to the threat source. The RS system therefore serves the individual by triggering quick defensive responses when social threats exist. However, the RS system can become maladaptive if activated indiscriminately. It can also become maladaptive in situations in which reflective, strategic behavior would be more functional, when the threat is minimal, or when efforts to prevent rejection undermine other personal goals.

Defense motivation takes several forms depending on the imminence of the threat and its intensity (Davis, 1992; Fanselow, 1994; LeDoux, 1996). Similarly, the defensive processes associated with RS take different forms depending on the stage of the relationship and the threat cue in question. During a first date, a high RS person may seek to avoid rejection by being attentive and perhaps hiding facts about him- or herself that the date may not appreciate. However, once rejected by the date, the high RS person may react immediately with direct and indirect forms of aggression (e.g., sarcastic comments, attempting to damage the person's reputation). In the long term, the high RS person may simply avoid dates in the effort to avoid further incidents of rejection. Hence, our theoretical approach draws attention to the need to understand the situational context when investigating operation of the RS system.

We have evidence that when rejection is the threat, activation of the RS system orients and prepares the individual to detect signs of social threat, use prior expectations to determine if this danger is personal, and be ready to act to avert the danger by escaping or striking out in self-defense (Downey, Mougios, Ayduk, London, & Shoda, 2004). We present this evidence later in this article.

Measuring Rejection Sensitivity

A cognitive-affective perspective on personality takes the view that a particular personality dynamic should be most clearly evident in a person's thoughts, feelings, and behavior in situations that activate the dynamic (Mischel & Shoda, 1995). Thus, individual differences in RS should be most evident in situations where rejection by important others is a possibility. This assumption is reflected in our operationalization of the RS construct in the Rejection Sensitivity Questionnaire (RSQ; Downey & Feldman, 1996).

The RSQ presents a series of interpersonal situations, identified through extensive qualitative pilot work, in which people make a request of someone who matters to them, a request that leaves them vulnerable to rejection from that valued other. Our approach has been to identify situations that are developmentally and culturally salient to the population of interest, and we have developed different measures for different populations. This includes RS measures tailored for college students, community adults, middle-school children, and incarcerated women. Measures of sensitivity to rejection because of status and physical characteristics have also been developed. These include measures for race (Chan & Mendoza-Denton, 2008; Mendoza-Denton, Downey, Purdie, Davis, & Pietrzak, 2002), gender (London, Downey, Rattan, & Tyson, 2008), sexual orientation (Pachankis, Goldfried, & Ramrattan, 2008), and physical appearance (Park, 2007). Complete versions of the measures that were developed in our laboratory can be found at http://www.columbia.edu/cu/psychology/socialrelations/.

For each RSQ situation presented, respondents make two ratings, one assessing expectations of rejection in the situation and one assessing the level of anxiety they would feel in the situation. As an example, take the item: ''You approach a close friend to talk after doing something that seriously upset him/her.'' The expectation and anxiety questions are tailored to reflect the scenario. The expectation question focuses on whether the close friend would or would not be willing to talk through the incident and the anxiety question focuses on how anxious the participant would be concerning the friend's reaction.

RS, regardless of the specific measurement instrument, is defined in terms of the multiplicative relation of rejection expectation by its anxiety. Though these are largely separable dimensions (Downey & Feldman, 1996), they jointly define the construct of RS and should be considered as such. Thus, RS can be viewed in terms of a ''hot cognition'' (Metcalfe & Mischel, 1999) that is activated in situations of threat. RS scores have shown a stable one-factor structure, good internal and test–retest reliability (Downey & Feldman, 1996), and discriminant validity in samples of college students (see Downey & Feldman, 1996), adolescents (Downey, Lebolt, Rincon, & Freitas, 1998), and older adults (Berenson, Gyurak, Downey, Ayduk, Mogg, Bradley, & Pine, 2009).

Additional studies have shown that RS is a unique individual difference variable that is not redundant with measures of

introversion, neuroticism, self-esteem, general attachment style, depression, social anxiety, or social avoidance (Downey & Feldman, 1996). RS is not correlated with self-monitoring or with the perspective taking or empathic concern dimensions of the Davis (1983) empathy measure (Romero-Canyas & Downey, 2008). RS is, however, associated with tendencies to experience distress when others are distressed (i.e., the distress subscale of Davis, 1983) and there is a small inverse relationship between RS and narcissism (Raskin & Terry, 1988).

Correlational Evidence Linking RS to Hostility/Aggression and Interpersonal Difficulties

We have considerable correlational evidence linking RS with hostility and aggression that has provided the basis for the studies of the cognitive-behavioral processes described below. RS is positively correlated with violence toward dating partners (Downey, Feldman, & Ayduk, 2000). The RS measure similarly predicts domestic violence in low-income (Paprocki, Downey, Berenson, Bhushan, & El-Bassel, 2008) and incarcerated women (Bedell, 1997). In a study of economically disadvantaged middle-school students, data from teacher reports, school records, and child self-reports revealed that RS was associated with disruptive behavior and disengagement from school over a 1-year period (Downey, Lebolt, et al., 1998). RS is a risk factor for self-harmful dysregulated behavior of the type seen in Borderline Personality Disorder (Ayduk, Zayas, et al., 2008). For example, among college students, RS was associated with having considered or attempted suicide and with frequent binge eating (Downey & Ayduk, 2002).

RS is also associated with behavior that increases personal risk. For example, after controlling for relevant sociodemographic and psychosocial factors, RS predicted lower levels of self-reported decision-making power in participants' sexual relationships, and less consistent HIV prevention efforts (Paprocki et al., 2008). We have also repeatedly shown that RS is associated with suppressing one's opinions (Ayduk, May, Downey, & Higgins, 2003) and with being willing to do things that contravene one's values (Downey & Ayduk, 2002; Purdie & Downey, 2000) in the hope of preserving a relationship. Thus, RS is associated with problematic tendencies to accommodate to relationships at the risk of personal safety.

Among men less invested in personal relationships, RS has predicted relationship-related distress and avoidance (Downey et al., 2000). Among early adolescents, anxious concerns about rejection predicted an increase over time in social avoidance and distress (London, Downey, Bonica, & Paltin, 2007). In college students, RS has been linked to slower entry into romantic relationships and fewer of them during the college years (Downey, Halim, & Bolger, 2003). Finally, we have shown that college students high in RS are prone to social avoidance and distress, independent of self-reported symptoms of borderline personality disorder or depression (Berenson & Downey, 2007).

RS is also a risk factor for anger and reactive aggression (Ayduk et al., 1999; Downey, Lebolt, et al., 1998). We now turn our attention to the potential mediation of this relationship. In the sections below, we first review evidence for the idea that individuals high in RS are more ready to perceive rejection-related threats. Subsequently, we examine other predictions of the RS model, such as the idea that individuals high in RS react to rejection-related threats more intensely than low RS people.

Implications of RS as a Defensive System for the Perception of Rejection Threat

RS is thought to function as a defensive motivation system. If so, RS should predict greater vigilance for rejection-related threats and perceptual readiness to detect threat and indications of the threat. We have amassed evidence for this point in both physiological and behavioral paradigms. In our discussion we distinguish the activation of the RS system in the service of threat detection from reactivity to the perception that rejection has occurred.

Physiological Evidence of Activation of the RS System by Social Threat Cues

When already in a state of defensive motivation, individuals are primed to perceive new threat cues more quickly and to react to them more strongly, as captured in paradigms such as the startle probe. The startle probe paradigm has been viewed as a useful method for capturing the activation of the defensive motivation system (Lang, 1995). Peter Lang and colleagues have shown that phobic individuals exhibit a heightened startle response to pictures relevant to their

phobic concerns, relative to nonphobic individuals (Lang, 1995; Lang, Bradley, & Cuthbert, 1990). In what we regard as an important test of our conceptualization of RS, we (Downey et al., 2004) looked at startle responses to a white noise burst that occurred while individuals viewed rejection- and acceptance-themed representational works of art (respectively, selected paintings by Edward Hopper and August Renoir). To control for valence, participants' startle responses were also probed in relation to nonrepresentational works of art that are positively and negatively themed (respectively, selected paintings by Jean Miró and Mark Rothko).

As predicted, high RS participants exhibited an increased startle response when viewing art that depicted rejection themes (i.e., Hopper paintings that conveyed a sense of loneliness or social disconnection; Downey et al., 2004). However, RS did not moderate startle magnitude in relation to the other picture themes. Such results suggest that high RS individuals are primed for threat in the context of rejection-related themes, but not social themes more generally or negative themes more generally. Low RS individuals did not display this pattern of findings, and, in fact, their startle response magnitudes were equal across picture stimulus conditions.

By way of conceptual replication, we conducted another study involving classical conditioning and its extinction (Olsson, Carmona, Downey, Bolger, & Ochsner, 2008). Social threat was manipulated in this study by the use of angry or neutral facial expressions of emotion, and compared to socially neutral stimuli such as geometric figures. In this study, high RS individuals displayed greater skin conductance to angry faces relative to the other presented stimuli and relative to low RS participants. These findings held when general anxiety was controlled and such differential reactions were absent among low RS individuals. Hence, RS is associated with preparedness to associate angry faces with unpleasant experiences.

Because the stimuli in the study were paired with aversive stimuli, we were able to see if the conditioned response was strong and more resistant to extinction among rejection sensitive people (Olsson et al., 2008). Consistent with the social learning account, high RS people's conditioned physiological response to angry faces was more resistant to extinction than conditioned responses to other stimuli (neutral faces and geometric shapes). The findings, thus, supported the proposal that, relative to people low in RS, people high in RS show heightened physiological activity that is indicative of activation of

systems that prepare the person to detect threat and defend the self against it (Downey et al., 2004; Lang et al., 1990). These physiological changes signal the activation of the system, and they are not responses to the detection of threat. As reviewed later, there are specific behavioral and affective responses to detected threat.

Behavioral Evidence of Social Threat Effects on Attention Deployment

According to the RS model, high RS people are vigilant for cues of rejection, which, once detected, will disrupt attention to other features of the environment. An emotional Stroop task was used to assess this prediction (Berenson et al., 2009, Study 1). In our task, rejection-related words (e.g., the word *rejection*), other negative words (e.g., *cancer*), and neutral words (e.g., *pavement*) were presented in different font colors and the task was to name the color of the letters. To the extent that attention is automatically drawn to the rejection-related content of the words, color naming should be slower for that class of words (McKenna & Sharma, 2004; Phaf & Kan, 2007). As predicted, individuals high in RS displayed slower color naming for rejection-related words, but not negative words more generally, even after controlling for general negative mood (depression and neuroticism), self-esteem, anxious attachment, and reading time for neutral words (Berenson et al., 2009, Study 1). These results demonstrate automatic processing of rejection-related content among RS individuals, even when the task discourages such processing.

Because RS functions as a defensive system, it should facilitate vigilance for rejection cues under certain task conditions and avoidance of them under others—that is, both patterns are consistent with treating rejection-related cues, even incidental ones, as threatening. In the emotional Stroop task, it was not possible to avoid rejection-related cues, in spatial terms, because they were integrated with the font color to be named. However, in other tasks in which attention can be differentially deployed across threatening and nonthreatening areas of visual space, RS individuals may shift attention away from rejection-related cues.

To assess the latter prediction, we used a Visual Probe task (Berenson et al., 2009, Study 2). Participants facing a computer used a response box to indicate the direction toward which an arrow was pointing. Just before the arrow was presented, pairs of faces

(including angry, threatening faces) were presented briefly, usually for less than a second. We looked at reaction times to the arrow as a function of whether the arrow was presented in the same spot as threatening faces. Controlling for general anxiety, RS predicted orienting away from the threat, showing faster reaction time to arrows presented in nonthreatening locations (Berenson et al., 2009, Study 2). Orienting away from angry faces has been found in other studies involving groups likely to be high in RS: abused children with post-traumatic stress disorder (Pine et al., 2005), adults reporting insecure attachment (Dewitte, Koster, De Houwer, & Buysse, 2007), and adults with borderline personality disorder (Berenson et al., 2009).

From a time course perspective, it is likely that RS individuals are vigilant for rejection-related cues, but subsequently avoid them. The intensity of the threat is also likely to govern whether vigilance or avoidance is deployed. Consider that the emotional Stroop study (Berenson et al., 2009, Study 1) used words, which could be considered mild threats, whereas the Visual Probe study (Berenson et al., 2009, Study 2) used angry faces, more potent threats. In the case of the latter sorts of cues, and consistent with preliminary data that we have collected, high RS individuals are likely to have felt a stronger sense of threat. We suggest that social threats are somewhat overwhelming to RS individuals. Hence, distraction and avoidance are preferred over focusing on the aversive stimuli. Research that clarifies the nature of the attentional bias, its underpinnings in individual differences, and its consequences for behavior, including aggression, holds potential to facilitate the development of targeted interventions for personal and interpersonal problems associated with RS. For instance, training people to shift attention toward cues of acceptance and away from cues of rejection could help high RS people. As we describe in the next section, high RS people see cues of rejection as more negative relative to low RS people. Unfortunately, given the same level of perceived rejection, high RS people also show more hostility and reactive aggression than low RS people.

Detection of Social Threat

Two recent studies have found evidence consistent with the idea that high RS individuals show a lower threshold for detecting social threat. In one study (Olsson et al., 2008), participants were presented with static faces that had been incrementally blended from pairs of

photographs depicting neutral and angry expressions. Participants were asked to judge whether the presented facial expression was neutral or angry. Those high in RS showed a lower threshold for detecting anger than those low in RS. In other words, less anger in the blended photograph was sufficient for high RS participants to categorize the face as angry in comparison to low RS participants. This RS-related difference was not found for blends of neutral expressions with other emotions, such as sadness, and thus the findings were specific to social threat signals.

Our model predicts that high RS people should be sensitive to cues of rejection in ways that make them react to the cues more strongly than low RS people. If so, compared to low RS people exposed to the same cue of rejection (e.g., an angry face), high RS people should detect a higher level of threat. We sought to test this prediction in another facial perception study (Romero-Canyas & Downey, 2008). However, we moved away from using static faces because in social interactions in which rejection is possible (e.g., a date, a job interview), people's faces are rarely static. The task of inferring other people's emotion in those situations can be more challenging, and the opportunity for misreading expression is greater. We also sought to simulate an apparently real video interaction rather than using what would be seen by participants as a cognitive decision-making task.

In this study (Romero-Canyas & Downey, 2008), participants believed they were using an online dating service to meet a prospective romantic partner. Two weeks after writing a profile of themselves, they came to the laboratory and were asked to watch muted video-clips that ranged in duration from 6 to 8 seconds. Each video depicted one person reading from a computer screen. Participants were led to believe that the people in the videos were other users of the online dating service. When participants were led to believe that the videos were of people reading the participant's profile, those high in RS detected more negative emotion in the videos relative to people low in RS watching the same videos. Consistent with a defensive motivational system, RS did not predict estimates of positive expressed emotion. When participants believed the videotaped person was reading another profile (rather than his/her own), there was no RS-related perceptual bias. Thus, RS individuals were particularly prone to seeing more threat when interactions apparently involved the self.

Personalization of Social Threat

RS individuals are prone to interpret ambiguous social cues as signs of potential rejection. For example, college students who entered romantic relationships anxiously expecting rejection more readily perceived hurtful intent in their new partners' ambiguous behavior (e.g., being cool and distant; Downey & Feldman, 1996, Study 3). Downey and Feldman (Study 2) also found evidence of the personalization of rejection from a stranger in an experiment. Following ambiguous rejection feedback after an interaction with a confederate, high RS people reported greater feelings of rejection and made comments such as "I wondered what I had done wrong." By contrast, low RS individuals were more likely to attribute the confederate's behavior to nonpersonal causes, as in the comment "I thought maybe she was in a rush." Experimenters, also, thought that RS individuals had reacted more personally and negatively to the ambiguous feedback.

Given their heightened concern with cues of rejection, the bias to see more negativity in interpersonal self-relevant situations, and the tendency to personalize cues of rejection, it is not surprising that highly rejection-sensitive people have stronger emotional and behavioral reactions toward rejection and conflict relative to people who are not as sensitive to rejection. We now turn to the evidence of the link between anxious expectations of rejection and hostility and reactive aggression.

REJECTION SENSITIVITY AND THE REJECTION–HOSTILITY/ AGGRESSION LINK

Earlier in the paper we summarized correlational evidence of the association between rejection sensitivity and hostility/aggression in situations where rejection is possible or has occurred. We now turn to specific evidence that rejection cues trigger hostile thoughts and aggressive behavior to the extent that people are high in RS. The RS model does not posit that high RS people will always be more hostile or aggressive than low RS people, but rather that they will be more likely to respond in these ways than low RS people when they feel rejected or experience a personal rejection. Much of the published work on the processes linking rejection with hostility/aggression has focused on the link between RS and women's responses to the threat

of rejection, work captured in a paper by Ayduk et al. (1999). Since those data were collected, we have replicated most of those findings with men. The basic findings from this recent line of work are summarized here along with those of Ayduk et al.'s (1999) paper.

The Automatic Nature of the Rejection-Hostility/Aggression Link Among High RS People

Rejection elicits hostility from people in general (Leary, Twenge, & Quinlivan, 2006), but such reactions should be particularly pronounced among high RS individuals. Because RS individuals are defensive and "on guard," perceived social threats are more likely to motivate "fight or flight" reactions, including reactive aggression. This link is apparent in cognitive lower-level associations, such that merely thinking about rejection makes high RS people think about aggression.

Specifically, we have pursued the idea that rejection cues automatically prime hostile thoughts to a greater extent among high RS individuals. We have tested this idea using a sequential priming-pronunciation paradigm (Ayduk et al., 1999; Study 1; Ayduk & Downey, 2008). In these studies, participants were presented with a word on a computer screen that was quickly replaced by a second word, which they were told to pronounce as quickly as possible. The words were selected to convey rejection (e.g., *abandon*), negative thoughts (e.g., *vomit*), hostility (e.g., *hit*), or neutral concepts (e.g., *chalk*). To assess the automaticity of the rejection-hostility link, we examined the extent to which hostile target words were facilitated by rejection primes relative to other primes.

As predicted, these studies found that high RS people were faster to pronounce hostility words when primed with rejection words, but not when primed with neutral or negative words (Ayduk et al., 1999; Study 1; Ayduk & Downey, 2008). Such priming effects were absent among low RS individuals. Furthermore, thoughts of hostility were not chronically more accessible to high RS people, and these thoughts were not primed by generic negative primes. Hostile primes did not facilitate the faster pronunciation of rejection-related targets in either high or low RS individuals. Hence, the findings support a unidirectional link of rejection and hostility, but one that is specific to those high in rejection sensitivity.

Actual rejection experiences should trigger hostility-reactive aggression to a greater degree among high RS individuals, relative to people less sensitive to rejection. We have found support for this hypothesis in a variety of studies. In one laboratory study (Ayduk et al., 1999, Study 2), college women exchanged biographical information with a young man supposedly waiting in another room to interact with them online. Half of the participants were then told that, due to a computer malfunction, there would be no online interaction. The other half of the participants were given an ambiguous rejection. Specifically, the experimenter claimed that, after the information exchange, the young man had chosen not to continue with the experiment and had left. Participants then evaluated him on a series of dimensions including how likeable and sociable he appeared to be. The most negative evaluations were from high RS women who had been ambiguously rejected. RS did not predict negative evaluations in the computer malfunction condition.

A subsequent study replicated the findings of the dating study with both women and men (Ayduk, Gyurak, et al., 2008). The experimental paradigm was modified slightly in order to test the hypothesis that rejection sensitivity would predict an indirect form of reactive aggression following rejection from strangers. After the ambiguous rejection by the potential dating partner in an online version of the ''getting to know each other'' task, the experimenter asked participants for their help in implementing the second part of the experiment. One of the tasks was to determine the amount of hot sauce to be given to the rejecting confederate. Relative to low RS people, high RS individuals behaved more aggressively toward the rejecter by allocating a greater amount of hot sauce, despite having had read earlier that the rejecter was very sensitive to spicy food (Ayduk, Gyurak, et al., 2008). RS did not predict the amount of hot sauce allocated by participants in the control condition.

In another relevant study (DiBenigno, Romero-Canyas, & Downey, 2007), singers participated in a study modeled after the television show *American Idol*. After auditioning for a panel of judges, participants received negative rejecting feedback or relatively neutral feedback. In the rejection condition, contestants' RS scores predicted more hostile and aggressive reactions to the rejecting judges, including a more negative evaluation of the judges' skills and more intense, derogatory comments in a video recorded for the judges. Also, rejected RS individuals added a greater amount of lemon juice to a cup

of tea meant for a fellow contestant who was about to audition, despite warnings about how drinking lemon juice immediately before singing could impair a singer's performance. These effects were absent in the neutral feedback condition.

In sum, there is experimental evidence that RS is associated with hostility and reactive aggression following rejection experiences. Hostility should also be evident in people's interactions with significant others, and not just strangers. Given that RS emerges from experiences of rejection with significant others, the RS dynamic should be particularly likely to be activated in the context of close relationships, especially in situations that make salient the possibility of being rejected by a significant other. These are the type of contexts in which we expect that the rejection–hostility link may have particularly detrimental effects on relationships, thus providing a window into the rejection cycle.

Implications of the Rejection–Hostility/Aggression Link for the Close Relationships of People High in RS

To explore how RS impacts the processes at play in people's relationships outside of controlled environments, we needed a technique that allowed us to study people in their natural setting. Accordingly, we turned to the daily diary method, which allows the sampling of people's feelings and behaviors in their usual surroundings and life and permits analysis that reveals how events on any given day can have consequences for later events (Bolger, Davis, & Rafaeli, 2003).

In a 28-day daily diary study of dating college couples (Ayduk et al., 1999, Study 3; Ayduk & Downey, 2008), we found that interpersonal conflict was equally frequent among low and high RS individuals. However, high RS individuals exhibited greater relationship conflict on days following feelings of high rejection. On these days, high RS people showed behaviors such as losing one's temper in a partner interaction; insulting, swearing, or yelling at the partner; saying something spiteful; and threatening to end the relationship or to "get back at the partner" for perceived wrongs. This cross-day phenomenon was not apparent among low RS individuals, for whom rejection experiences and subsequent conflict were unrelated. Thus, in romantic relationships, high RS people were more likely to get in conflicts with their partners if they felt rejected, but that link was not evident among low RS people.

Situations where the potential for rejection from a significant other exist are likely to activate the RS dynamic. Such situations potentially include seeking support from one's partner and not receiving it. This dynamic was the focus of a series of studies (Kang, 2006; Kang, Downey, Iida, & Rodriguez, 2009) involving cohabiting couples in the 3 weeks preceding one partner's completion of the bar exam (cf. Gleason, Iida, Shrout, & Bolger, 2008). Each evening, participants reported on their feelings about the relationship and indicated whether they had sought and received support from their partner. As predicted, on days when participants sought support from their partner but did not receive it, those high in RS evaluated the relationship more negatively, relative to those low in RS. RS differences were less apparent on other days (e.g., days when support was sought and received).

Does the Reactive Hostility of High RS People Harm Their Close Relationships?

We have fairly consistent evidence that high RS people, irrespective of gender, react with hostility/aggression to conflicts in their relationships. We know that couples that include one highly rejection sensitive person are nearly three times more likely to break up within a year than couples without a rejection sensitive person (Downey, Freitas, et al., 1998). However, the processes through which RS-induced reactive hostility/aggression impacts relationships vary as a function of the sex of the individual being considered in the analysis. We have been more successful in identifying the processes through which high RS women's reactive hostility/aggression is associated with negative relationship outcomes and, for this reason, we will generally focus on women here.

In an observational study, we videotaped couples engaging in a discussion of an unresolved conflict (Downey, Freitas, et al., 1998). The videotapes were coded for negative and hostile behavior using the Marital Interaction Coding system-IV (MICS-IV; Weiss & Summers, 1983). High RS women used a hostile tone of voice, denied responsibility for a problem, mocked or demeaned their partner, and expressed disgust or displeasure more frequently than low RS women. The partners of high RS women reported more resentful anger toward the relationship after the discussion than did the partners of low RS women. This effect was partially mediated by the

women's hostile behaviors, which accounted for about half of the effect of women's RS on their partner's resentment after the discussion. Clearly, in a conflict situation, high RS women's defensive hostility elicits a rejecting response from their romantic partners. We can view this dynamic in terms of a self-fulfilling prophecy: The fear of rejection leads high RS women to behave in ways that lead to rejection.

A similar self-fulfilling prophecy effect was evident in a daily diary study (Downey, Freitas, et al., 1998). In one analysis, we entered previous-day conflict (reported by Partner 1) as a predictor of Partner 2's feelings and behaviors on the next day. On days preceded by conflict, the partners of high RS women reported decreased satisfaction with the relationship and more thoughts of ending it. Conflict did not have these effects on the partners of low RS women. On days preceded by conflict, furthermore, high RS women were aware that their partners were less satisfied with the relationship. Thus, as the model predicts, the threat of rejection, in the form of a conflict, activates the RS dynamic, leading high RS women to behave in ways that are likely to elicit rejection from partners.

The hostile responses of high RS women affected their partners in ways that had long-term implications for the relationship. A year after the study had been completed, 44% of the couples that had included a high RS woman had ended their relationship. Of the couples that included a low RS woman, only 15% of the couples had broken up.

As mentioned above, the data from these "self-fulfilling prophecy" studies (Downey, Freitas, et al., 1998) suggest that different processes are at work for high RS men. In the diary studies, the conflicts of rejection-sensitive men did not have the documented negative consequences for their relationships. It appears as if the partners of high RS men may react differently to conflict compared to the partners of high RS women, seeing conflict as an indication of investment in the relationship (Ayduk, Downey, & Romero-Canyas, 2008). It is also possible that after conflict, high RS men behave differently than high RS women, engaging in more direct problem-solving efforts and fewer unilateral actions. In heterosexual relationships, men are more likely to use tactics that deal with conflict-related issues directly and seek solutions that involve both parties, whereas women are more likely to seek to exert influence indirectly and to do what they think resolves the problem unilaterally (Falbo & Peplau, 1980). Some of

our own studies suggest that high RS men engage in more conscientious relationship behavior when they perceive rejection-related cues (Ayduk, Downey, et al., 2008). However, with the data we have currently available, we have been unable to resolve this puzzling finding, so we can only speculate about the processes at play. Some of our current research is focused on understanding these apparent sex differences better.

Summary

RS involves a physiological preparedness to detect and respond to rejection cues and to learn—or rather fail to unlearn—strong responses to cues of possible social exclusion. RS also involves cognitive biases in attending to and perceiving rejection, heightened reactivity to social threat, and interpersonal behaviors that appear to damage relationships. By bias, we mean a bias about what cues get attended to (rejection-related ones), how much signal is detected in ambiguous feedback, and in whether ambiguous rejection-related cues are personalized when such an attribution is plausible. In the nonclinical samples in which we have conducted our research, RS is not associated with a bias toward seeing rejection in the absence of indicators of potential rejection. RS individuals engage in more hostile interpersonal evaluations and behaviors when they perceive rejection-related cues and such reactions are damaging to their relationships.

Despite the rather grim picture painted by the studies we have reviewed, we know that not all people high in RS experience the difficulties we have described thus far. Each of the links in the model presents a point of potential intervention. Work on the RS model has focused on social factors and dispositional processes that may counteract the activation of the RS dynamic when people experience rejection threat.

INTERRUPTING THE REJECTION SENSITIVITY CYCLE

Role of Self-Regulation

A number of strands of evidence suggest RS may have its pernicious effect in part because of the dysregulating effect of rejection cues on self-regulatory processes. For example, as discussed earlier, rejection cues disrupt goal-directed attentional processes in high RS

individuals (Berenson et al., 2009). We have obtained converging support for this idea in a recent fMRI study (Kross, Egner, Ochsner, Hirsch, & Downey, 2007). The study compared people high and low in RS in their reactions to the same rejection versus acceptance paintings used in the startle study described previously (Downey et al., 2004). Irrespective of RS, participants showed more activity in regions of the brain involved in emotional processing such as the insula. However, low RS individuals showed more activity than high RS individuals in three clusters in the left lateral prefrontal cortex. This is the region of the brain that has been shown in cognitive neuroscience studies to support abstract thinking and reasoning and, in social cognitive studies, to play a critical role in emotion regulation.

Abilities to deploy attention strategically and to cognitively transform the meaning of stimuli from distressing to neutral, or even pleasant, are what enable people to transcend the most salient aspects of the immediate situation and to inhibit habitual responses. These abilities play a central role in contemporary conceptualizations of self-regulatory competency (Metcalfe & Mischel, 1999; Mischel, Shoda, & Rodriguez, 1989). Drawing from these conceptualizations, we have begun to examine whether self-regulation capacities, in particular in attention deployment, can interrupt the RS cycle. We have evidence of an affirmative answer from experimental studies in which we manipulated attention deployment and from correlational studies in which we measured individual differences in self-regulation skills of this type.

In an experimental study (Ayduk, Mischel, & Downey, 2002), college students first completed a battery of questionnaires, which included the RSQ. Then they were asked to recall an interpersonal experience that made them feel extremely rejected, abandoned, or left out. By priming people with intensely negative and personally significant rejection experiences, our goal was to put all participants momentarily in the state that high RS people typically experience when they perceive rejection. Through a mental imagery task, we asked people to focus on either the cool or the hot aspects of the experience. The content of our attentional focus manipulations were derived from Metcalfe and Jacobs' (1998) hot/cool memory systems model. They argue that an amygdala-based hot system encodes fragments of biologically significant affective information, whereas the cool system encodes contextual, spatiotemporal information. Thus, in

the hot ideation condition participants were asked to think about their emotions and visceral responses (e.g., their heartbeat, the heat in their face). In the cool ideation condition, they were told to think about the context-related information contained in the event (e.g., the objects in the environment, spatial-temporal relationships).

After the imagery task, participants completed a lexical decision task in which they made word/nonword judgments about anger/ hostility words, negative control words, neutral control words, and nonwords. Reaction times in a lexical decision task index the temporary accessibility of target words—the more accessible a construct represented by a word, the faster the reaction time. Consistent with our hypothesis, hostile thoughts were less accessible when cool attentional focus was situationally primed compared to when hot focus was primed, and this was true for both high and low RS people. Words negative in valence, but unrelated to hostility in content, were not differentially affected by the attentional focus prime. These findings suggest that manipulating attentional focus can interrupt the automatic rejection–hostility link that characterizes high RS people's processing of social rejection cues.

Related results were found in two community samples (Ayduk et al., 2000). We assessed self-regulatory competency in terms of abilities to delay gratification, that is, inhibit behavioral consumption of a smaller current temptation for a later larger reward (Mischel et al., 1989). As hypothesized, regression analyses showed that RS and regulatory competency interacted to predict diverse negative outcomes (e.g., drug use, tendencies toward violence) such that these outcomes were particular to the combination of high RS and low self-regulation skills. In other words, high self-regulation skills appear to buffer the negative impact of the RS dynamic among high RS individuals. In a longitudinal study that began when participants where in nursery school, high RS was related to negative self-image, drug use, ineffective coping, and educational under-achievement at age 28 only among those who had difficulty delaying gratification at age 4 (Ayduk et al., 2000, Study 1). Likewise, high RS middle-school children showed more negative self-image and impaired social functioning than low RS children, if they had difficulty delaying gratification, but not otherwise (Ayduk et al., 2000, Study 2).

More recently, Ayduk, Zayas, et al. (2008) extended this line of investigation in an examination of the role of RS in borderline

personality disorder. In one study, the relation between RS and self-reported borderline personality features (assessed via the Personality Assessment Inventory; Morey, 1991) was moderated by self-regulatory competency assessed by a self-report measure of the ability to control attention (Derryberry & Reed, 2002). RS predicted more features of borderline personality disorder for people with less regulatory skills. In another study, the same interactive pattern was found in which delay of gratification was assessed when the adult participants had been 4 years old. In sum, there is good reason for thinking that self-regulatory skills and capacities are effective in mitigating the pernicious effects of RS.

The Healing Power of Positive Relationships

If anxious expectations of rejection develop in response to the types of rejection experiences characteristic by troubled (presumably earlier) relationships, can such expectations be reduced by supportive, accepting relationships? London et al. (2007) found initial evidence for this idea in an early adolescent sample. The study began shortly after children entered middle school, a time during which they had the opportunity to meet new peers. Analysis of sociometric data showed that being liked by peers (assessed using a standard peer nomination technique) predicted a reduction in anxious rejection expectations over a 4-month period in both boys and girls. Thus, supportive relationship experiences appear to be effective in counteracting expectations of rejection developed earlier in life.

Kang (2006) further explored this idea among college students and their romantic relationships. In a study, anxious expectations of rejection were assessed at the beginning of students' first, second, and third years of college. These students provided a detailed history of their dating relationships and relationship satisfaction at several points over the course of the 4-year study. Participants who experienced relatively more satisfying relationships showed a decrease in RS over time, whereas those in relatively less satisfying relationships did not change significantly in their levels of RS. The beneficial effects of a good relationship were true of both men and women and did not depend on initial level of RS.

Global relationship satisfaction translates into supportive transactions at the daily level. In a diary study of support transactions between cohabiting couples that included one person preparing for

the bar exam (Kang, 2006; Kang et al., 2009), we explored whether support had beneficial effects at the daily level. Among people high in RS, receiving support had a stronger, positive impact on feelings of acceptance relative to people low in RS. However, these high RS individuals experienced stronger feelings of rejection and anger when they sought support but did not receive it. Thus, at the daily level there is evidence that high RS individuals benefit from partner support, a characteristic of satisfying relationships, but also that RS makes people particularly likely to be affected negatively when they do not receive sought support.

Given the assumption that situations in which individuals put themselves ''on the line'' and seek help are especially diagnostic of rejection sensitivity, it is not surprising that situations in which significant others do not provide the sought support would be especially distressing to people high in RS. However, support from romantic partners in those situations seems to increase positive feelings toward partners. Thus, relationships have both the potential to reinforce or reduce anxious expectations of rejection. Important to intervention possibilities is the point that healthy, happy relationships mitigate RS-related biases and may, in fact, lead to decreases in RS over time.

CONCLUSIONS

Guided by interpersonal theories of unconscious motivation (e.g., Horney, 1937), we have proposed a specific individual difference construct—rejection sensitivity—that appears to be of broad importance in understanding psychosocial functioning (Downey & Feldman, 1996; Downey et al., 2004). The 10 or so years since the construct was introduced have been especially productive and we now know much more about the RS dynamic than we did earlier. Our more recent research efforts have taken full advantage of methodological developments in several literatures. The present review documents what we have learned so far. We view RS in terms of an underlying defensive motivation system that is particular to interpersonal contexts, biases individuals to readily perceive and strongly react to cues to rejection, and predisposes the individual to hostility and reactive aggression. Yet more recent work has highlighted the fact that the negative consequences of RS are not inevitable. We are currently working toward interventions that are

theory informed and likely to be particularly efficacious in their effects among high RS individuals.

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