

Regulating the Interpersonal Self: Strategic Self-Regulation for Coping With Rejection Sensitivity

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People high in rejection sensitivity (RS) anxiously expect rejection and are at risk for interpersonal and personal distress. Two studies examined the role of self-regulation through strategic attention deployment in moderating the link between RS and maladaptive outcomes. Self-regulation was assessed by the delay of gratification (DG) paradigm in childhood. In Study 1, preschoolers from the Stanford University community who participated in the DG paradigm were assessed 20 years later. Study 2 assessed low-income, minority middle school children on comparable measures. DG ability buffered high-RS people from interpersonal difficulties (aggression, peer rejection) and diminished well-being (e.g., low self-worth, higher drug use). The protective effect of DG ability on high-RS children's self-worth is explained by reduced interpersonal problems. Attentional mechanisms underlying the interaction between RS and strategic self-regulation are discussed.

People's fears and doubts about whether others will meet their needs for acceptance and belonging can cause them to behave in ways that erode their relationships and their sense of well-being (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969, 1973, 1980). Compared with those who expect acceptance from significant others, people who expect rejection act in more hostile, aggressive ways in relationships (e.g., Downey, Feldman, & Ayduk, 2000; Downey, Freitas, Michaelis, & Khouri, 1998; Dutton, Saunders, Staromski, & Bartholomew, 1994; Gaines et al., 1997; Mikulincer, 1998). They experience more troubled and dissatisfying relationships that end sooner (e.g., Downey & Feldman, 1996; Downey, Freitas, et al., 1998; Simpson, Ickes, & Grich, 1999) and are more susceptible to loneliness, social anxiety, and depression following rejection (e.g., Ayduk, Downey, & Kim, in press; Baldwin, 1994; Cooper, Shaver, & Collins, 1998; Hammen, Burge, Daley, & Davila, 1995; Kobak & Sceery, 1988; Shaver & Hazan, 1987; Simpson, Rholes, & Phillips, 1996).

Despite the apparent link between anxious rejection expectations and maladaptive outcomes, however, there is reason to be-

lieve that not everybody who fears and expects rejection experiences personal and interpersonal difficulties to the same extent (Freitas & Downey, 1998; Taylor & Aspinwall, 1996). A theoretically relevant factor related to better functioning in vulnerable individuals may be how well they can regulate themselves under psychosocial stress (Aspinwall & Taylor, 1997; Calkins & Fox, 1992; Cicchetti, Rogodosch, Lynch, & Holt, 1993; Eisenberg, Fabes, Guthrie, & Reiser, 2000). More specifically, the effective regulation of negative arousal not only may enable the inhibition of undesired, impulsive behaviors that are potentiated by stress but also may facilitate execution of problem-solving strategies (Ariaga & Rusbult, 1998; Ayduk & Mischel, in press). In the present studies, we specifically explored the role of self-regulation through strategic attention deployment (assessed in the classic self-imposed childhood delay of gratification [DG] paradigm) and expected that it would protect individuals with anxious rejection expectations against the negative interpersonal and personal consequences associated with such expectations.

Theoretical Framework: The Cognitive–Affective Processing System

The predicted interaction between rejection expectations and strategic attention deployment in particular, and between vulnerabilities and protective factors in general, was conceptualized from a Cognitive–Affective Processing System (CAPS) framework (Freitas & Downey, 1998; Mischel & Shoda, 1995). In the CAPS model, behavior is mediated by a set of cognitive–affective units (CAUs), consisting of mental representations such as encodings, expectations and beliefs, affects, goals, and competencies, as well as self-regulatory strategies such as attention control.

These CAUs are organized and interact dynamically within a stable connectionist activation network that reflects the biological

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and psychosocial history of the individual (Shoda & Mischel, 1998). This organization constitutes the basic structure of personality and reflects and underlies the individual's uniqueness. It is this organization that guides and constrains the activation of specific cognitions, affects, and potential behaviors when an individual processes situational features. Although the organization of relations within the person's processing network remains relatively stable and invariant across situations, the system itself is intrinsically interactionist, so that its behavioral expressions are reflected in contextualized "if . . . then . . ." patterns—the behavioral signatures of personality. The self-regulatory strategies and related attention control mechanisms within the CAPS network enable the impulse control, planning, and "cooling operations" that are basic for effective coping.

Rejection Sensitivity: A Cognitive–Affective Processing Disposition

This general CAPS framework recently has been applied to theories of the relational self (e.g., Andersen, Reznik, & Manzella, 1996; Baldwin, 1994, 1999; Chen & Andersen, 1999), including the rejection sensitivity (RS) model. Within this emerging tradition, we view RS as a dynamic pattern of interconnected expectations, encodings, and affects within the CAPS system—a pattern that is triggered by specific psychological features of the interpersonal situation and that, in turn, elicits intense reactions to rejection (e.g., hostility, withdrawal). More specifically, we conceptualize RS as the cognitive–affective processing disposition to anxiously expect, readily perceive, and intensely react to rejection (Downey & Feldman, 1996; Feldman & Downey, 1994).

In the RS model, prior rejection experiences are hypothesized to lead people to form insecure working models of relationships that set the stage for how individuals represent and behave in their subsequent relationships (Downey, Khouri, & Feldman, 1997; Feldman & Downey, 1994; see also Baldwin, 1999). Although this conception of RS is clearly relevant to the attachment construct, it is more specific and precise in its definition, operations, and predictions (for a more complete discussion of the relation of RS to attachment and attributional approaches, see Ayduk et al., in press; Downey & Feldman, 1996; Downey, Lebolt, Rincon, & Freitas, 1998; Feldman & Downey, 1994). Thus, the RS model is consistent with efforts in social cognition over the past decade to develop precise, testable accounts of the content, structure, organization, and dynamics of internal working models (Andersen et al., 1996; Baldwin, 1999; Berk & Andersen, 2000; Collins & Read, 1994; Reis & Downey, 1999).

The RS model specifically posits anxious rejection expectations as the cognitive–affective mediator that links situational features to psychological processes operating in interpersonal relationships (Downey & Feldman, 1996; Feldman & Downey, 1994; Mischel & Shoda, 1995). Thus, people high in RS are thought to be characterized by relatively high levels of anxiety and concern about abandonment and expectations of rejection, whereas those low in RS are thought to be relatively unconcerned about rejection and expect acceptance.

"Hot" Dynamics of RS

In interpersonal situations in which the possibility of rejection is both applicable and personally salient (Higgins, 1996), people high in RS automatically experience a sense of threat and foreboding

(Magios, Downey, & Shoda, 2000). This highly aroused negative emotional state elicited by threat narrows high-RS people's attentional focus and leads them to scan the environment in search of possible rejection cues (Compas, 1987; Krohne & Fuchs, 1991; Magios et al., 2000). Vigilance for rejection cues makes high-RS individuals especially susceptible to perceiving and magnifying intentional rejection in significant others' ambiguous or negative behavior. Indeed, people high in RS have been found to perceive rejection in ambiguous cues more readily than those low in RS (Downey & Feldman, 1996; Downey, Lebolt, et al., 1998).

When high-RS individuals perceive rejection, they are in a state of threat, increased stress, and negative arousal. In such a state, people are more ready to react automatically and strongly to threat-related cues at the expense of more cognitive and contemplative responses (Davis, 1992; Fanselow, 1994; Lang, Bradley, & Cuthbert, 1990). Thus, the RS model argues that for high-RS people, perceived rejection elicits "hot," reflexive responses without the mediation and benefit of more complex "cool" cognitive processes that enable reflection and rational problem solving (Metcalfe & Mischel, 1999; Mischel, Shoda, & Rodriguez, 1989).

In support of this conceptualization, a series of studies on female aggression in relationships have shown that when high-RS women feel rejected, they react to rejection with anger and increased hostility (Ayduk, Downey, Testa, Yen, & Shoda, 1999). A study on male violence has also shown that high-RS men who are invested in relationships are at higher risk for intimate violence than men low in RS (Downey et al., 2000). Paralleling these findings with adults, RS has been linked to peer aggression in middle school children (Downey, Lebolt, et al., 1998).

High-RS people's negative reactivity ultimately undermines their relationships, bringing about further rejection. In young adulthood, the relationships of both men and women high in RS are more likely to end sooner than those of people low in RS (Downey, Freitas, et al., 1998). In middle school, high-RS children get victimized by their peers and are more lonely (Purdie & Downey, in press). In the long run, such interpersonal difficulties erode the high-RS person's sense of personal worth and efficacy, leading to depression and decreased self-esteem in a feedback loop (Ayduk et al., in press; Leary, 1999). Furthermore, among women in prison, RS is related to higher levels of substance abuse (Bedell & Downey, 1999).

Strategic Attention Deployment in the Regulation of Impulsive Hot Responses

In threatening interpersonal situations that activate anxious rejection expectations, the challenge for high-RS people is the inhibition of their hot, automatic response tendencies (e.g., lashing out, retaliation) for the sake of desired long-term relationship goals (Ayduk & Mischel, in press). The basic mechanisms underlying effective self-regulation in the service of long-term goals have become increasingly clear in recent years (Baumeister & Heatherton, 1996; Mischel, Cantor, & Feldman, 1996; Mischel et al., 1989). The consensus emerging from this literature is that effective self-regulation involves the ability to attenuate the frustration and aversiveness of a stressful situation by preventing oneself from focusing attention on the emotion-arousing aspects of threatening stimuli. It is thus through strategic and flexible attention deployment that people can transcend the impulse to behave in a reflexive and automatic manner in a here-and-now perspective (see also Derryberry & Rothbart, 1997).

DG as an Index of Strategic Attention Deployment

In three decades of experimental and longitudinal studies, the classic DG paradigm has become a prototype for the study of self-regulation and attentional control in the service of long-term goals (Loewenstein & Prelec, 1993; Mischel, 1974, 1983, 1996; Mischel, Ebbsen, & Zeiss, 1972; Mischel et al., 1989). Briefly, in this paradigm a young child is presented with a choice between an immediate but smaller treat and a delayed but larger reward (e.g., one marshmallow now vs. two marshmallows later). Soon after children commit to waiting for the larger reward, delay becomes difficult and aversive, and there are considerable individual differences in the amount of time children are able to wait.

Experimental studies have shown that attentional control strategies that are used to reduce the aversiveness of the delay through purposeful self-distraction and cognitive reframing operations that serve to cool the frustrating, hot aspects of DG are crucial for successful delay (Metcalf & Mischel, 1999; Mischel et al., 1989, 1996). For example, preschoolers delayed much longer when they distracted themselves with "fun thoughts" during the delay (Mischel et al., 1989; Rodriguez, Mischel, & Shoda, 1989). Similarly, mental transformations that cool the hot features in the situation through reframing (e.g., thinking of tempting pretzel sticks as little logs rather than in terms of their salty, crunchy taste) also facilitate control efforts (Mischel et al., 1989, 1996).

The relationship between individual differences in the use of effective attentional strategies and delay ability was directly assessed by examining children's eye-gaze patterns during the delay task in a sample of 6–12-year-old boys with impulse control and adjustment problems (Rodriguez, Mischel, & Shoda, 1989). This study showed that even after controlling for verbal–intellectual ability (assessed by the Peabody Picture Vocabulary Test), children's spontaneous use of cooling strategies (i.e., looking away from the rewards and using self-distraction) was significantly related to longer delay times. Furthermore, children who used such cooling strategies during the delay task were reported by counselors in a camp setting to be lower in verbal and physical aggression in their relationships with peers and adults (Mischel et al., 1989; Rodriguez, Shoda, Mischel, & Wright, 1989).

Children's ability to spontaneously use such attentional strategies and to delay gratification longer in this paradigm also has important implications for long-term developmental outcomes. Longitudinal studies to date have shown that the number of seconds that preschoolers are able to delay gratification significantly predicts diverse adaptive social–cognitive outcomes and efficacy years later. To illustrate, those preschoolers who waited longer in this paradigm were described by their parents as more socially and cognitively competent teenagers who were better able to manage stress and exert effective self-control in diverse frustrating situations (Mischel, Shoda, & Peake, 1988). Likewise, they obtained substantially higher SAT scores (Shoda, Mischel, & Peake, 1990).

Relationship Between Attentional Control and RS

Similar to the dilemma of waiting in the DG paradigm, effective coping in threatening interpersonal contexts involves attenuating negative arousal by cooling the hot features of the situation so that one can inhibit impulsive reactions for the sake of long-term but desired goals (Mischel et al., 1989). This basic regulatory mechanism is instantiated in "accommodation" dilemmas within the

context of interpersonal relationships (Rusbult, Verette, Whitney, Slovik, & Lipkus, 1991) and has implications for the understanding of self-regulatory processes relevant to RS. Accommodation refers to "the inhibition of impulses to respond destructively to a partner's potentially destructive act, instead reacting in a constructive manner" (Arriaga & Rusbult, 1998, p. 927). Rusbult and her colleagues showed that inhibition of automatic retaliatory response tendencies is contingent on activating an "other-perspective." This, in turn, requires keeping negative arousal under control so that one is able to attend to situational information that may provide alternative explanations for another's seemingly destructive behavior. Successful attention management thus facilitates accommodation in conflicts and enables the individual to attain desired long-term relationship goals. Subsequently, the impact of enhanced relationship quality should be related to a positive self-concept (i.e., higher self-esteem) and also to perceptions of self-efficacy.

In terms of developmental psychopathology, insecure relational schemas have been conceptually linked to regulatory dysfunction because it is in the context of warm and responsive early relationships that children learn to trust others as well as to maintain tolerable levels of frustration (Brazelton, Koslowski, & Main, 1974; Hershorn & Rosenbaum, 1991; Jacobvitz & Sroufe, 1987; Stern, 1977). However, there is also evidence suggesting that relationship schemas and self-regulatory control, in particular attention management, may have independent effects on adaptive functioning. Developmental research, for example, has shown that attentional control is one of the psychobiologically based components of temperament (e.g., Derryberry & Rothbart, 1997; Rothbart & Ahadi, 1994), which is visible as early as the 3rd month of life. Such an attentional network serves regulatory functions, restricting and modulating the reactivity of motivational systems related to fear (as in the dynamics of RS) as well as to appetitive–approach behaviors (as in the DG paradigm; Eisenberg, Shepard, Fabes, Murphy, & Guthrie, 1998; Field, 1981; Gerardi, Rothbart, Posner, & Kepler, 1996; Johnson, Posner, & Rothbart, 1991; Metcalfe & Jacobs, 1996; Metcalfe & Mischel, 1999; Mischel et al., 1989, 1996; Rodriguez, Mischel, & Shoda, 1989). This network of empirical evidence suggests that attentional control may form part of a generalized self-regulatory competency that helps to strategically regulate (or cool) arousal and associated impulsive behaviors in many hot, affect-laden contexts. As such, it should be relevant for coping with diverse aversive, frustrating, or confrontational situations requiring self-control or willpower, both in the DG realm and in interpersonal relations (Rodriguez, Mischel, & Shoda, 1989; Sethi, Mischel, Aber, Shoda, & Rodriguez, 2000).

Taken together, these considerations led us to predict that individual differences in the use of cognitive and attentional control strategies, as indexed by the DG paradigm, should enable high-RS individuals to restrain and modulate their impulsive response systems. Instead of responding with automatic reactions, high-RS persons with high delay ability may be able to behave in more reflective, controlled, and adaptive ways, the consequences of which should be evident in the quality of their social relationships as well as in their self-concepts (Mischel et al., 1996).

Present Studies

Guided by this analysis, we tested the hypothesis that DG and anxious rejection expectations would interact in their impact on the degree to which individuals experience personal and interpersonal

difficulties. We expected high-RS individuals with low delay ability, but not those with high delay ability, to experience personal and relational difficulties to a greater extent than low-RS people.

We examined the hypothesized relationship between RS and DG in two distinct samples. The sample in Study 1 consisted of European American middle-class adults from 25 to 30 years of age who had previously participated in experimental studies of DG while attending a preschool serving the Stanford University community. In these data, we examined whether self-regulatory competence, indexed by DG ability measured in preschool, would be positively related to self-esteem, self-worth, and ability to cope with stress in high-RS individuals in adulthood. The hypothesized interaction was also examined for educational level and extent of risky drug use because these variables reflect positive and negative behavioral outcomes that clearly have significant real-life consequences.

The Study 2 sample consisted of Hispanic and African American early adolescents attending a public school serving an economically disadvantaged, largely immigrant population in New York City. In this sample, we tested whether high strategic self-regulatory competency, indexed by DG ability measured in elementary school, would be related to reduced quality of peer relationships and enhanced self-worth in high-RS middle schoolers.

STUDY 1

In a series of experiments conducted over 6 years (1968–1974) at the Bing Nursery School at Stanford University, 550 children who were approximately 4 years of age were tested in the standard DG paradigm (Mischel, 1974; Mischel & Ebbesen, 1970; Mischel et al., 1972). The results from a first follow-up conducted when these children were 16 to 18 years old have been previously reported (Mischel et al., 1988; Shoda et al., 1990). A second follow-up was conducted in 1993 when the participants were 25 to 30 years old. In the study reported here, we explored the possible protective role of self-regulation in coping with RS by using previously unreported data from the second-wave follow-up ($N = 152$). No data were available on such relationship outcomes as satisfaction–dissatisfaction with romantic partners or friends. Thus, Study 1 focused primarily on other theoretically relevant variables related to interpersonal and personal difficulties discussed below.

There is evidence showing that the most important source of daily stress that adults experience consists of negative social interactions (Bolger, DeLongis, Kessler, & Schilling, 1989). Furthermore, recent evidence suggests that the self-esteem system has a monitoring function for social acceptance such that interpersonal rejection and social exclusion (real or perceived) are associated with lower self-esteem (Leary, 1999; Leary, Tambor, Terdal, & Downs, 1995). Not surprisingly, people who anxiously expect rejection seem to be vulnerable to depletion of self-esteem and self-efficacy when they experience interpersonal stress (Ayduk et al., in press; Hammen et al., 1995; Leary, Schreindorfer, & Haupt, 1995). Therefore, in this study, we explored participants' self-esteem, self-worth, and ability to cope with stress as a function of their RS and DG ability.

Is the hypothesized relationship between RS and delay ability evident in consequential positive and negative real-life behavioral outcomes? A prime measure reflecting successful life outcomes and prognosis is educational level. Drug use is another negative

outcome that has been previously linked to RS (Bedell & Downey, 1999). To address these questions, Study 1 also examined the interaction between RS and delay ability on these two outcomes.

Method

Sample and Procedure

Preschool DG scores were obtained for a total of 550 participants between 1968 and 1974 (see Mischel et al., 1989). In the adult follow-up assessment conducted between 1993 and 1995, questionnaires were sent to the parents of 444 participants for whom we had identified any possible current address. The mailing included a questionnaire for parents to complete, plus a separate envelope that contained questionnaires that parents were asked to address and send to their children.

A total of 71 questionnaires were returned as "not deliverable," and 10 questionnaires were returned but not completed because the children were deceased. With these adjustments, the total potential number of responses was 363 participants. In all, 187 parents and 152 children returned questionnaires. In 56 cases, questionnaires were received from the parents but not their children. In 21 cases, questionnaires were received from the children but not their parents. Thus, questionnaires were available from both a parent and his or her child for a total of 131 participants (53 men and 78 women). Of these 131 parent responses, 60% were completed solely by the mother, 14% were completed solely by the father, and 26% were completed jointly by both parents. There were no cases in which each parent completed a separate questionnaire.

The participants who responded to the adult follow-up ($n = 152$) did not differ significantly in age from the larger pool of children when the initial preschool delay measure was obtained ($t < 1$), nor did they differ in the actual length of the self-imposed delay period (i.e., voluntary waiting time; $t < 1$). For the 131 responding participants for whom we also had parent-reported data, the delay times were not significantly different from those for whom we had only parent-reported data ($n = 56$; $t < 1$) or from those for whom we had only self-reported data ($n = 21$; $t < 1$).

The mean age of the participants in the 1993 follow-up was 27 years, 1 month ($SD = 19$ months). In terms of relationship status, 53% of the participants were single, 6% were engaged, 40% were married, and 1% were divorced.

DG: Measuring Early Self-Regulatory Competencies

DG was assessed through the basic self-imposed waiting paradigm (Mischel, 1974; Mischel & Ebbesen, 1970). In this situation, children were tested individually and were seated at a table with a desk bell. They were told by the experimenter that they could have either a small treat immediately or a larger treat later. Items such as cookies, pretzels, or marshmallows were used as treats. After a preference was established for the larger reward, the experimenter explained the contingencies to the children: If the child waited until the experimenter came back, then the child would receive the preferred larger reward (e.g., two pretzels). However, the child could terminate the waiting period by ringing the bell at any time, in which case the child would receive the smaller reward (e.g., one pretzel). After assessing the child's comprehension of the contingency, the experimenter left the room and returned after 15 min (sometimes 20 min, depending on the study) or when the child rang the bell, left the seat, or began to eat the reward.

Some children took part in multiple delay experiments, with each experiment varying the availability of the rewards for attention and the type of instructions given to the children. Because the psychological meaning of the delay situation may change considerably for the second assessment, the standard procedure has been to use delay times at the first assessment as the measure of delay ability (Mischel et al., 1988). Furthermore, because children participated in different experimental conditions in the first assessment that influenced their waiting time, it was necessary to adjust observed delay times to take account of the norms for each condition.

Following Mischel et al. (1988), this was accomplished by centering delay times for each individual around the mean of all the individuals in the experimental group. Thus, we calculated how many seconds a participant's delay time deviated from the average delay time of children in the same experimental condition at first assessment, using the norms obtained from the larger sample of children who originally participated in the delay studies. The effect of this procedure was to remove the main effect of experimental condition, yielding scores that reflect more precisely individual differences in delay ability. Preliminary analyses showed that using the raw scores and explicitly controlling for the effect of experimental condition did not change the findings reported below in the Results section. Further analysis revealed that these findings also did not differ significantly by experimental condition.

The mean delay time for this sample was 18.32 s ($SD = 330.37$ s; male participants: $M = 30.15$ s, $SD = 345.16$ s; female participants: $M = 11.02$ s, $SD = 322.57$ s); for sex differences, $t(151) < 1$, *ns*. Mean age at the time of experimental assessment of DG behavior for the sample who participated in this study was 52.14 months ($SD = 5.76$ months; male participants: $M = 53.32$ months, $SD = 5.03$ months; female participants: $M = 51.57$ months, $SD = 6.11$ months); for sex differences, $t(151) = 1.98$, $p = .05$.

Follow-Up Mailings

The adult follow-up mailing for the participants included reports of demographic information, items from the Rosenberg Self-Esteem Questionnaire (Rosenberg, 1979), items adapted from Hazan and Shaver's (1987) Adult Attachment Styles Questionnaire, and a modified shortened version of the California Child Q-Set (Block & Block, 1969; Mischel et al., 1988), among other measures. To ease the respondents' task, all scales were converted to a common response format on which participants made self-descriptiveness ratings on 9-point Likert-type scales ranging from 1 (*disagree strongly*) to 9 (*agree strongly*). A similar questionnaire, which was sent to parents of the participants, included reports of demographic information, the children's history at various developmental markers, and a report of the children's standing on the 90-item modified Q-set. Thus, some of these outcome variables were assessed by both self-ratings and parent ratings.

In summary, whereas DG ability was assessed many years prior to the assessment of the outcome variables, participants' anxious rejection expectations (as measured by attachment-related items described below) were assessed concurrently with the outcome measures. To provide outcome data from a source other than the participants, parent ratings of the participants on outcome variables comparable to those on which participants rated themselves also were used in the analyses reported below.

RS and Anxious Expectations of Rejection

Anxious rejection expectations are central to the construct of RS. The Rejection Sensitivity Questionnaire (Downey & Feldman, 1996), which directly assesses anxious rejection expectations, was not available at the time of the Bing Nursery School follow-up. However, nine single-sentence items adapted from the adult attachment styles measure of Hazan and Shaver (1987) and representing secure, anxious-ambivalent, and anxious-avoidant attachment styles were included in the follow-up mailing. Participants responded to these items with respect to close others in general, not with regard to a specific relationship.

Conceptually, the three items included in the follow-up to assess an anxious-ambivalent style—"I often worry about being abandoned by others," "I often worry that my partner won't stay with me," and "I often worry that my partner really doesn't love me"—should tap RS best because they most closely capture anxiety about and expectations of rejection by significant others. To examine this assumption empirically, three independent graduate student judges who had extensive familiarity with the RS construct were asked which of the nine attachment items most closely tapped anxious expectations of rejection as described by the RS model. As

expected, these three items unanimously received top ranking by all three judges and were used to operationalize RS.

A composite RS score was created by averaging participants' ratings on these three items ($\alpha = .74$). The mean RS score for this sample was 3.17 ($SD = 1.88$; men: $M = 2.91$, $SD = 1.48$; women: $M = 3.33$, $SD = 2.08$); for sex differences, $t(150) = -1.34$, $p > .18$. RS was weakly correlated with delay time, $r(150) = -.18$, $p < .03$.

Positive Functioning: Self-Ratings of Self-Esteem, Self-Worth, and Coping With Stress

The positive functioning composite consisted of measures of self-esteem, self-worth, and ability to cope with stress. Eight items from the Rosenberg Self-Esteem Questionnaire (Rosenberg, 1979) were included in the child participants' follow-up mailing. Their preselection was based on pilot research indicating that these items maximized the scale's internal reliability. Ratings on these eight items were averaged to create a self-esteem composite ($\alpha = .84$; $M = 7.28$, $SD = 1.20$).

Three independent judges were asked to select and rank order the items that most closely tapped self-worth as well as those that most closely assessed the ability to cope with stress from among the items on the California Child Q-Set. The items for self-worth that emerged with top ranking by all three judges were "feels unworthy, thinks of self as bad" (reverse scored); "has high aspirations for self"; and "is self-reliant, confident; trusts own judgment." Self-ratings across these items were averaged to create a self-worth composite ($\alpha = .46$; $M = 7.45$, $SD = 0.99$). For coping ability, the following items received the top ranking by all three judges: "reverts to immature behavior when under stress"; "tends to become rigidly repetitive or immobilized under stress"; and "tends to go to pieces under stress; becomes rattled and disorganized." Ratings across these items were reversed and averaged to create a coping ability composite ($\alpha = .70$; $M = 6.53$, $SD = 1.52$).

Not surprisingly, participants' ratings of self-esteem and self-worth were significantly correlated with each other, $r(150) = .88$, $p < .001$. Coping ability was also highly correlated with both self-esteem, $r(150) = .57$, $p < .001$, and self-worth, $r(150) = .51$, $p < .001$. Thus, the scores on each scale were first standardized and then averaged to create a single self-rated positive functioning index in z scores ($\alpha = .77$).

Positive Functioning: Parent Ratings of Participants' Self-Worth and Coping With Stress

The parent-rated positive functioning composite consisted of parents' ratings of their children on the aforementioned self-worth scale ($\alpha = .73$; $M = 7.37$, $SD = 1.34$) and the ability to cope with stress scale ($\alpha = .74$; $M = 7.08$, $SD = 1.42$). This composite did not include the self-esteem scale because the Rosenberg Self-Esteem Questionnaire was not included in the parents' mailing. Parents' ratings of their children's self-worth and coping ability were positively correlated with each other, $r(129) = .50$, $p < .001$; thus, the scores on these scales were first standardized and then averaged to create a parent-rated positive functioning composite in z scores. Parent and self-ratings of positive functioning were positively correlated, $r(129) = .40$, $p < .001$.

Educational Level

Participants indicated their highest educational level on a checklist (*high school* = 1, *correspondence courses* = 2, *college* = 3, *master's* = 4, and *PhD* = 5). In terms of the highest educational degree obtained by the participants, 11% had high school diplomas, 5% had 2-year junior college degrees, 56% had bachelor's degrees, 20% had master's degrees, and 7% had doctoral degrees. Two percent of the participants indicated that none of these categories described their educational level and were not included in the data analyses reported below for this variable.

Drug Use

In the follow-up mailing, participants were asked to indicate how often they had used marijuana and drugs other than marijuana (e.g., cocaine or crack) over the course of the previous year (i.e., *never, once or twice, a few times, once a month, once a week, two or three times a week, or daily*). The distribution of frequency responses was skewed; 89% and 73% of the participants reported that they had not used cocaine-crack or marijuana, respectively. No one reported having used cocaine-crack more than once a month, whereas 7% of the participants reported using marijuana more than once a month. For data analyses, responses for each variable were recoded as 0 for never having used the drugs and as 1 for having used them at least once.

Hypotheses and Rationale for Data Analyses

To test the hypothesis that RS and DG would interact in predicting positive functioning, educational level, and drug use, we regressed each dependent variable on participants' DG, RS, and the interaction term between them. Following Aiken and West (1991), each independent measure was centered on its mean and was used as a continuous variable in the analyses. For each outcome variable, interaction effects were plotted using the parameter estimates derived from the centered regression equations. Predicted values were computed using scores that were one standard deviation below and above the mean of RS (for low RS and high RS, respectively) and of DG scores (for low DG and high DG, respectively; Aiken & West, 1991). We further tested two specific hypotheses about the interaction between RS and DG: (1) RS would be negatively related to positive outcomes in low-DG participants but not in high-DG participants, reflecting the protective role of DG, and (2) DG would be positively related to positive outcomes in high-RS (vulnerable) individuals but not in low-RS (less vulnerable) individuals.

We tested these two specific hypotheses by using simple slope analysis (Aiken & West, 1991). For the first hypothesis, we created a low-DG variable by centering the DG scores at one standard deviation below the DG mean. We also created a high-DG variable by centering the DG scores at one standard deviation above the DG mean. We then conducted two multiple regression analyses. The first regression analysis included the low-DG variable, RS, and the interaction term between low-DG and RS. In this analysis, the parameter estimate of RS would indicate whether RS was related to functioning in participants at one standard deviation below the DG mean. The second regression analysis was conducted by substituting high-DG for low-DG. This analysis tested whether RS was related to the dependent variable in participants at one standard deviation above the DG mean.

We tested the second hypothesis in a parallel fashion. We first created a low-RS variable by centering the RS scores at one standard deviation below the RS mean. We also created a high-RS variable by centering the RS scores at one standard deviation above the RS mean. Subsequently, multiple regression analyses were conducted separately for the low-RS and high-RS variables. The first regression analysis included the low-RS variable, DG, and the interaction term between DG and low-RS. In this analysis, the parameter estimate of DG would indicate whether DG was related to the outcome variable in participants at one standard deviation below the RS mean. The second regression analysis was conducted by substituting high-RS for low-RS. This analysis tested whether DG was related to the dependent variable in participants at one standard deviation above the RS mean.

Results

Preliminary data analyses indicated that participants' sex did not interact either with RS or with DG for any of the dependent variables. Similarly, there were no three-way interactions between sex, DG, and RS. Therefore, participants' sex (unweighted effects code: female = -1, male = 1) was included only as a covariate in the regression analyses reported below. Preliminary analyses also

indicated that the results reported below with regard to parent ratings were moderated neither by parent sex (i.e., whether the mother, the father, or both parents completed the questionnaire) nor by the interaction between parents' and children's sex.

Positive Functioning

As we hypothesized, multiple regression analyses yielded a significant interaction between RS and DG for positive functioning both for self-ratings, $F(1, 147) = 11.74, p < .001$, and for parent ratings, $F(1, 126) = 4.32, p < .05$, controlling for child participants' sex. Table 1 shows the parameter estimates from these regression analyses. The interaction between RS and DG for self-ratings remained significant when the analyses included only the participants for whom we had both self-reported and parent-reported data ($n = 131$). To test the possibility that the DG \times RS interaction might be an artifact of a curvilinear relationship of either or both of the predictor variables to the outcome measures, we also included the squared terms for DG and RS in subsequent analyses. The RS \times DG interaction term stayed significant in the presence of these squared terms for self-ratings, $F(1, 145) = 11.80, p < .001$, as well as for parent ratings, $F(1, 124) = 4.16, p < .05$. Finally, the RS \times DG interaction term was significant for self-esteem, self-worth, and coping ability scales when the analyses were conducted separately for each variable.

Figure 1 plots the interaction between RS and DG for self-ratings of positive functioning based on the parameter estimates shown in Table 1. The same pattern of regression lines as those illustrated in Figure 1 emerged for parents' ratings and, therefore, are not illustrated separately.

As Figure 1 shows, Hypotheses 1 and 2 were supported. Consistent with Hypothesis 1, whereas RS was negatively related to positive functioning in low-DG participants (self-ratings: $B = -.26, SE = .04, p < .0001$; parent ratings: $b = -.21, SE = .05, p < .0001$), it was not significantly related to functioning in high-DG participants (self-ratings: $B = -.05, SE = .05, ns$; parent ratings: $B = -.05, SE = .06, ns$).

Further analyses with regard to Hypothesis 2 also showed that DG was positively related to functioning in high-RS participants (self-ratings: $B = .001, SE = .0003, p < .0001$; parent ratings: $B = .001, SE = .0003, p < .001$). In contrast, as we expected, delay was not significantly related to the outcome measure in low-RS participants (self-ratings: $B = -.00009, SE = .0002, ns$; parent ratings: $B = .00023, SE = .0003, ns$).¹

Overall, this pattern of results indicated that high-RS/high-DG participants had higher levels of positive functioning than their high-RS/low-DG counterparts. Furthermore, vulnerable (high-RS) individuals who had high self-regulatory ability were not significantly different from low-RS individuals. Finally, low-RS participants' functioning was not significantly related to their DG, as was expected because of their lower levels of vulnerability.

The California Child Q-Set also has been used traditionally to measure the construct of ego resiliency—the ability to dynamically adjust to environmental constraints and possibilities in a way that

¹ We also examined the possibility that DG ability mediates the effect of RS on positive functioning. However, path analyses did not support a mediational model either for self-rated or for parent-rated positive functioning in Study 1. There was also no evidence of a mediation in the Study 2 sample because DG and RS were not significantly correlated.

Table 1
Parameter Estimates for Predicting Outcome Variables as a Function of Rejection Sensitivity (RS) and Delay of Gratification Ability (DG)

| Outcome variable | Intercept | Sex | RS | DG | RS × DG |
|---|------------------|------------------|------------------|---------------------|-----------------------|
| Study 1 | | | | | |
| Positive functioning (self-ratings) | .059 (.06) | .10 (.06) | -.15*** (.03) | .0005** (.00018) | .00032*** (.00009) |
| Positive functioning (parent ratings) | .002 (.07) | -.06 (.07) | -.13** (.04) | .0007** (.00021) | .00024* (.00011) |
| Education | 4.01*** (.10) | .013 (.10) | -.05 (.05) | .0006* (.0003) | .00036* (.00016) |
| Use of cocaine-crack | .11*** (.02) | .04 (.02) | .022 (.01) | -.00005 (.00007) | -.00012** (.00004) |
| Study 2 | | | | | |
| Self-worth (self-ratings) | .006 (.08) | -.15 (.08) | -.061** (.02) | .012 (.01) | .0055* (.0026) |
| Interpersonal functioning (teacher ratings) | .007 (.07) | -.25*** (.07) | -.00009 (.02) | .021* (.009) | .0064** (.0023) |

Note. Standard errors are presented in parentheses.
 * $p < .05$. ** $p < .01$. *** $p < .001$.

ensures attainment of long-term goals (Block & Block, 1969, 1980). Analyses of ego resiliency scores based on ratings across all California Child Q-Set items (Block & Block, 1969; Mischel et al., 1988) supported Hypotheses 1 and 2, replicating the pattern of findings observed for positive functioning. This result is not surprising because ego resiliency and positive functioning were highly correlated ($r_s > .70$). This relationship is consistent with earlier findings with this population that linked preschool DG with ego resiliency and positive life outcomes in adolescence (Mischel et al., 1988).

Similar analyses were also run using the items that were included in the follow-up to assess avoidant and secure attachment style and that had been judged to be less central to the construct of

RS than the items assessing anxious-ambivalent attachment. The Avoidant Attachment Style × DG and the Secure Attachment Style × DG interactions were not significant for any of the outcome variables.

Behavioral Outcomes

Educational Level

As with positive functioning, we expected vulnerable individuals with high DG ability to have higher levels of education and lower levels of drug use (looking separately at cocaine-crack vs. marijuana) than high-RS/low-DG individuals. The predicted RS ×

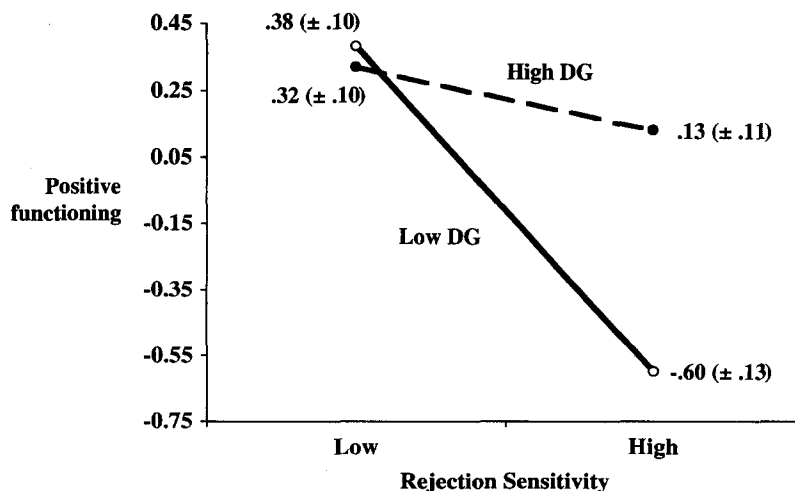


Figure 1. Self-rated positive functioning as a function of rejection sensitivity (RS) and delay of gratification (DG) ability. RS × DG interaction: $F(1, 147) = 11.74, p < .001$. Numbers in parentheses indicate 95% confidence intervals for each predicted value.

DG interaction was found for educational level, $F(1, 141) = 4.13$, $p < .05$. This interaction remained significant when we controlled for the squared terms for RS and DG, $F(1, 139) = 4.76$, $p < .05$.

Figure 2 plots the predicted values based on the parameter estimates presented in Table 1. Further tests of simple slopes showed that RS was negatively related to educational level in low-DG participants ($B = -.17$, $SE = .07$, $p < .05$), whereas it was not significantly related to educational level in high-DG participants ($B = .06$, $SE = .08$, ns). Furthermore, DG was positively related to educational level in high-RS participants ($B = .001$, $SE = .0004$, $p < .01$). In contrast, the relationship between DG and educational level was not significant for those low in RS ($B = -.00004$, $SE = .00004$, ns). Together, these findings indicate that high-RS/high-DG participants had higher educational levels than high-RS/low-DG participants.

Drug Use

Multiple regression analyses also yielded a significant RS \times DG interaction for cocaine-crack use, $F(1, 146) = 8.85$, $p < .01$, but not for marijuana use ($F < 1$), and these results did not change when logistic regression analyses were conducted, Wald $\chi^2(1, N = 147) = 5.94$, $p < .02$. Controlling for the squared terms of RS and DG did not alter the interaction term for cocaine-crack use, $F(1, 139) = 7.38$, $p < .01$.

Parameter estimates for cocaine-crack use are shown in Table 1, and Figure 3 plots the predicted values based on these estimates. Subsequent simple slope analyses showed that RS was significantly and positively related to cocaine-crack use only in low-DG participants ($B = .06$, $SE = .02$, $p < .001$; high-DG group: $B = -.018$, $SE = .021$, ns). In contrast, DG was significantly and negatively related to cocaine-crack use only in high-RS participants ($B = -.00028$, $SE = .0001$, $p < .05$; low-RS group: $B = .00018$, $SE = .0001$, $p = .10$).

Summary and Discussion

Consistent with our theoretical predictions, Study 1 found that high-RS individuals showed more negative outcomes indicated by

lower levels of self-esteem, self-worth, and coping ability than low-RS individuals, but only if they were also low in strategic self-regulation. In other words, the personal difficulties typically associated with RS were evident for high-RS/low-DG participants. In contrast, vulnerable individuals who had high DG ability were not significantly different from low-RS people, who are generally less vulnerable to negative outcomes (Ayduk et al., in press; Downey, Lebolt, et al., 1998; Levy, Ayduk, & Downey, in press). The pattern of results was similar whether functioning was assessed by self-report or by parent report, increasing the validity of the findings. Similarly, high-RS individuals reported lower educational levels and more frequent (albeit highly limited) cocaine-crack drug use unless they had high DG ability in preschool. Marijuana use was not related to RS, DG, or their interaction. Marijuana use may be less diagnostic of maladjustment than cocaine-crack use because of its less addictive properties and less serious consequences.

STUDY 2

The results of the first study provided clear support for the hypotheses tested and had the advantage of coming from a long-term longitudinal study. They were limited in their generalizability, however, given the upper-middle socioeconomic status background of the participants. Thus, in Study 2, we tested the same general hypotheses in a sample of inner-city middle school children at higher demographic risk than the Study 1 sample because of their low socioeconomic background and minority status.

To replicate and extend the findings of Study 1 in this sample, we used conceptually related but methodologically different, population-appropriate measures. We again tested the hypothesis that strategic control, assessed in the DG paradigm, would buffer individuals against the corrosive effects of RS on positive self-concept, peer acceptance, and interpersonal aggression. In addition, the data allowed us to examine the quality of children's interpersonal functioning (i.e., peer aggression and acceptance) as a mediator of the effect of RS on self-worth. More specifically, we hypothesized that for high-RS children with low DG ability, the

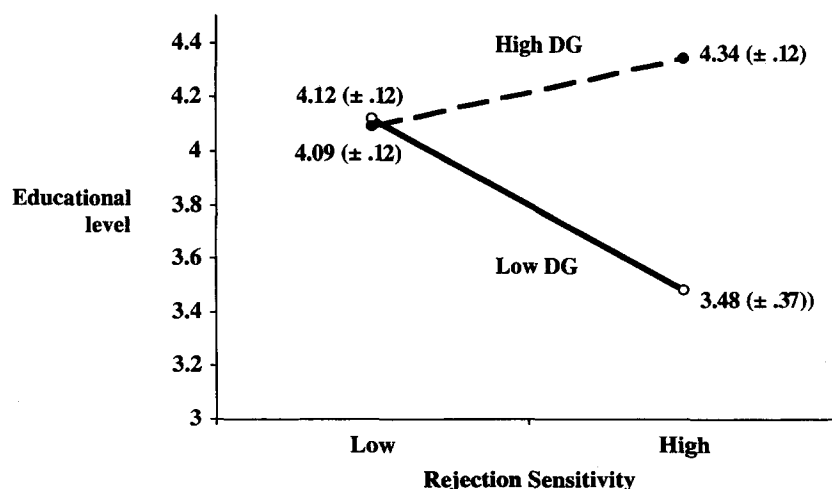


Figure 2. Educational level as a function of rejection sensitivity (RS) and delay of gratification (DG) ability. RS \times DG interaction: $F(1, 141) = 4.31$, $p < .05$. Numbers in parentheses indicate 95% confidence intervals for each predicted value.

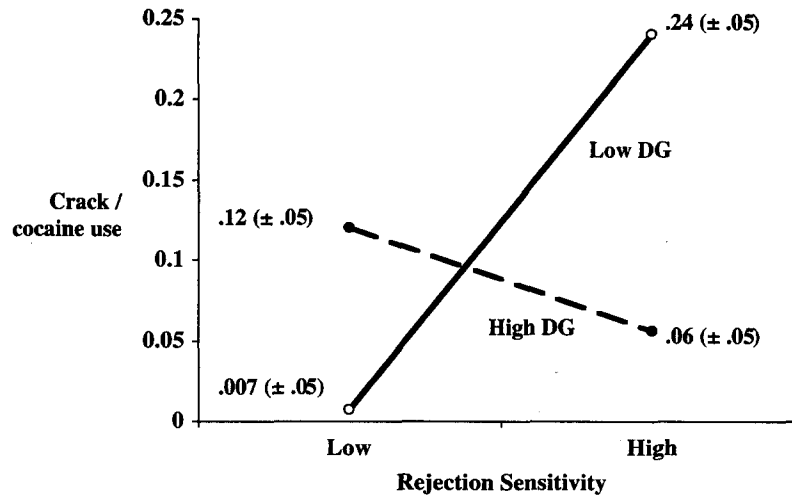


Figure 3. Cocaine/crack use as a function of rejection sensitivity (RS) and delay of gratification (DG) ability. RS \times DG interaction: $F(1, 146) = 8.85, p < .01$. Numbers in parentheses indicate 95% confidence intervals for each predicted value.

tendency to react aggressively creates a basis for being rejected, and such interpersonal experiences consequently undermine children's perceived self-worth (Leary, 1999).

Method

Sample and Procedure

Participants were 154 children (77 boys and 77 girls) attending public school in a largely minority, economically disadvantaged, inner-city neighborhood of Bronx, New York. Seventy-three percent of the sample were Hispanic; 23% were African, African Caribbean, or African American; and 4% were of other ethnicities (i.e., Asian or Caucasian).

The present study reports previously unpublished data from a larger longitudinal research program on the risk and protective factors in children's development (see Downey, Lebolt, et al., 1998). All students in participating classes were invited to be in the study and were given consent forms to be completed by a parent (or guardian). Approximately 85% of all the children returned completed parental consent forms, which were renewed yearly. The mean age of the participants at the beginning of the 3-year period (1992–1995) during which the study was conducted was 11 years, 3 months ($SD = 9.8$ months), when participants were 5th and 6th graders. Participants were followed up as they moved from elementary to middle school, into 6th and 7th grades.

Measures

Overview of Data Collection

DG ability was assessed during the 1992–1993 academic year. Anxious rejection expectations were assessed twice, once during the 1993–1994

academic year and again during the 1994–1995 academic year. The dependent measures in this study were self-rated self-worth and teacher-rated aggression and peer acceptance, each of which was assessed twice, once during the 1992–1993 academic year and again during the 1994–1995 academic year (see Table 2). Complete longitudinal data that would have allowed us to predict changes in the outcome variables as a function of DG and RS were available for 45% to 60% of the sample. To maximize sample size and statistical power, the data were averaged across assessments for each variable in the analyses reported below.

DG

DG was assessed through the basic self-imposed delay waiting paradigm described in Study 1, with the rewards used adapted to be age-appropriate (e.g., M&M candies), following Rodriguez, Mischel, and Shoda (1989). Previous research in older children (6 1/2- to 13-year-olds) has shown DG ability to be useful in assessing participants' self-regulatory competencies for the age range covered by the participants in Study 2 (Rodriguez, et al., 1989).

We tested all participants only once and always used the same delay situation (i.e., rewards exposed, no ideation suggested). Because the participants were older than the age at which DG typically has been assessed, the experimental limit for waiting time was extended to 25 min. Delay ability was assessed in the same experimental situation for all participants; thus, raw delay scores (in minutes) were used for analyses in this study.

At the time of the assessment, 55% of the participants were in 5th grade, and 45% were in 6th grade. The mean waiting time was 19.4 min ($SD = 7.9$ min; boys: $M = 18.4$ min, $SD = 8.1$ min; girls: $M = 20.4$ min, $SD = 7.6$ min), $t(153) = 1.55, p > .10$. Given the relatively late age at which participants' DG was measured, we expected and found the distri-

Table 2
Time Table of the Bronx Data Collection

| Measure | Time 1 assessment | Time 2 assessment |
|-----------------------|--------------------------|--------------------------|
| Delay | 5th–6th grade: 1992–1993 | |
| Self-worth | 5th–6th grade: 1992–1993 | 7th–8th grade: 1994–1995 |
| Aggression | 5th–6th grade: 1992–1993 | 7th–8th grade: 1994–1995 |
| Peer acceptance | 5th–6th grade: 1992–1993 | 7th–8th grade: 1994–1995 |
| Rejection sensitivity | 6th–7th grade: 1993–1994 | 7th–8th grade: 1994–1995 |

bution of delay times to be strongly negatively skewed. Of the 154 participants in this study, 90 delayed for the entire 25-min waiting period.

RS and Anxious Expectations of Rejection

The measure. A relevant measure of anxious rejection expectations, the Children's Rejection Sensitivity Questionnaire, Section I (CRSQ; Downey, Lebolt, et al., 1998), had been previously developed for use in this population. The complete measure is available on the World Wide Web: <http://www.cc.columbia.edu/~gd20/kidrej.html>. Section I of the CRSQ presents children with six peer- and six teacher-related vignettes in which the possibility of rejection exists. For example, in one teacher-related vignette, children are asked to imagine that they are in a new school in which the teacher lets the kids in the class take turns borrowing a video game for the weekend. Children are asked to imagine that they decide to ask the teacher if they can take the video game home this time.

For each vignette, children first indicate the degree of anxious anticipatory affect they would experience in that situation (e.g., "How NERVOUS would you feel about whether or not the teacher will let you take the video game home this time?"), using a 6-point scale ranging from 1 (*not nervous*) to 6 (*very, very nervous*). Then, children indicate the likelihood that the other person would respond with acceptance or rejection (e.g., "Do you think the teacher is going to let you take the video game home this time?") on a scale ranging from 1 (*YES!!!*) to 6 (*NO!!!*). A high score indicates the expectation of rejection, and a low score indicates the expectation of acceptance. The psychometric properties of this measure were reported by Downey, Lebolt, et al. (1998).

Administration and scoring. The CRSQ was administered to groups of 5–6 children in their classrooms by a group of trained research assistants. Monolingual Spanish-speaking participants (10% of the sample) completed Spanish translations of the questionnaires while supervised by bilingual research assistants. There were no significant differences in the results reported below as a function of whether the questionnaires were completed in Spanish or English. RS scores were computed as follows: A separate anxious rejection expectation score was generated for each situation by multiplying the rating for the expected likelihood of rejection by the degree of anxiety over the possibility of its occurrence (Expectancy of Rejection \times Anxiety). Then the total (cross-situational) score was computed by averaging across all 12 situations.

The CRSQ was administered twice, once when participants were 6th and 7th graders (1993–1994) and again when they were 7th and 8th graders (1994–1995). There were data from both Time 1 and Time 2 assessments for 64% of the sample. For the results reported in the next section, we conducted separate analyses for each outcome variable using only this subsample, and the pattern of results stayed the same as when the entire sample was analyzed. Thus, we report the results from the whole sample.

Participants' mean ages were 12 years, 3 months during the first assessment and 13 years, 3 months during the second assessment. Responses to the anxious expectations section of the CRSQ at Time 1 and Time 2 ($r = .49, p < .001$) were collapsed to compute the final RS scores ($\alpha = .86; M = 7.85, SD = 3.51$; male participants: $M = 7.68, SD = 3.58$; female participants: $M = 8.03, SD = 3.42$); for sex differences, $t(153) < 1, ns$. In this sample, RS was not significantly correlated with delay time, $r(152) = -.04, ns$.

Self-Worth

Self-worth was assessed with the Perceived Competence Scale for Children (Harter, 1982). This 36-item questionnaire yields indices of perceived competence in several different domains (e.g., cognitive, athletic) as well as a general perceived competence index. The focus in this study was on the 12 items assessing general perceived competence or self-worth. Each item consists of two opposing statements that describe a variety of feelings using familiar language (e.g., "Some kids like the kind of person they are, but other kids often wish they were someone else."). All items are arranged such that the two opposing statements fall on opposite

sides of the page and are clearly separated by the conjunction *but* in the middle. Participants are first asked to choose which of the statements on either side of the page is most like them. After they have selected one of the two statements, they are asked to distinguish whether the statement they have chosen is *really true* or only *sort of true* for them. Thus, participants respond to each item using a 4-point scale, in a format that is easy for primary school children to understand and has low social desirability bias (Harter, 1982).

The Perceived Competence Scale for Children was administered twice, once in the 1992–1993 school year (Time 1) and then again in the 1994–1995 school year (Time 2). The two self-worth scores were positively correlated ($r = .36, p < .001$); thus, a composite score for self-worth was created by averaging Time 1 and Time 2 scores ($\alpha = .81$). Data were available from both assessments for 65% of the participants, and the analyses reported below, which use data from the whole sample, did not change when they were conducted on this subsample.

The mean self-worth composite score was 3.00 ($SD = 0.51$). To assist in comparisons with the rest of the findings that are presented, self-worth scores were standardized and used in the analyses as such.

Teachers' Assessments of Interpersonal Functioning

Teachers were asked to complete a modified version of the Teacher's Checklist (Coie & Dodge, 1988), which assesses different aspects of students' psychological, academic, and interpersonal functioning. In this study, teachers were asked to endorse 20 items on a 5-point scale ranging from *not at all true* to *very true*, and their assessments on selective items (see below for item selection) were used to index participants' peer acceptance and aggression. Teachers were asked to rate children twice over the period during which the study was conducted. Thus, participants were rated by two different teachers at two separate times, once in 1992–1993 (Time 1) and then again in 1994–1995 (Time 2). To increase the reliability of teachers' ratings, peer acceptance and aggression ratings were averaged across the two assessments. Eighty-six percent of the sample had teachers' ratings from both assessments. The pattern of results reported below using the whole sample did not change when analyses were conducted on this subsample.

Three independent judges, different from those who took part in Study 1, were asked to select and rank order the items that best assessed peer acceptance (i.e., how accepted and liked the child is by peers) as well as those that best assessed peer aggression (i.e., how aggressive the child is toward peers) from the items on the Teacher's Checklist. The items that emerged with top ranking by all three judges for peer acceptance were "is liked by everyone," "has lots of friends," and "is easy to get along with." Time 1 and Time 2 assessments of peer acceptance were significantly correlated, $r(131) = .33, p < .001$, and the scores were averaged across these assessments ($\alpha = .86; M = 3.74, SD = 0.85$).

The Teacher's Checklist items that emerged with top ranking by all three judges for peer aggression were "threatens and bullies to get his/her own way," "uses physical force to dominate others," "starts fights with other children," and "says mean things and threatens others." Time 1 and Time 2 aggression ratings were also significantly correlated, $r(132) = .50, p < .001$, and were averaged ($\alpha = .94; M = 1.85, SD = 0.99$). Both teacher-reported aggression and peer acceptance were related to children's ratings of their self-worth in the theoretically expected direction, $r(152) = -.21, p < .01$, and $r(152) = .26, p < .01$, respectively.

Teachers' ratings of aggression were related substantially and negatively to their ratings of peer acceptance, $r(152) = -.65, p < .001$. To create a composite interpersonal functioning index, peer aggression scores were first reversed. Aggression and acceptance scores were then standardized and averaged to create an interpersonal functioning composite in z scores.

Hypotheses and Rationale for Data Analyses

Similar to Study 1, to test whether RS and DG interacted in predicting participants' ratings of self-worth and teachers' ratings of participants'

interpersonal functioning, we regressed each dependent variable on participants' DG, RS, and the interaction term between them, using participants' sex as a covariate. Similar to Study 1, each independent measure was centered on its mean and was treated as a continuous variable in the analyses (Aiken & West, 1991). DG was treated as a continuous variable although it was negatively skewed (i.e., 90 children waited to the criterion 25-min delay time). This approach was used to allow comparisons of the findings across the two studies. Furthermore, the results reported below did not change whether DG was treated as a continuous or as a categorical variable.

Interaction effects were plotted based on the parameter estimates derived from centered regression equations. Predicted values were computed using scores that were one standard deviation below and above the mean of RS (low RS and high RS, respectively) and of DG (low DG and high DG, respectively).

As in Study 1, we expected (1) that RS would be negatively related to the outcome variables in low-DG participants but not in high-DG participants and (2) that DG would be positively related to the outcome variables in high-RS individuals but not in low-RS individuals. These hypothesized relationships were again tested by a simple slope analysis (Aiken & West, 1991), as described in Study 1.

Results

Preliminary data analyses indicated that participants' sex did not interact either with RS or with DG for any of the dependent variables. There were no three-way interactions between sex, DG, and RS. Therefore, participants' sex was included only as a covariate in the regression analyses reported below. Controlling for race did not alter the results reported below. Race also did not moderate any of these results.

Self-Worth

Multiple regression analysis yielded a significant interaction between RS and DG, $F(1, 149) = 4.53, p < .05$, controlling for participants' sex. Furthermore, the RS \times DG interaction term stayed significant when the squared terms for RS and DG were included in the analysis, $F(1, 147) = 4.85, p < .05$. Parameter estimates for predicting self-worth are included in Table 1, and Figure 4 illustrates the predicted regression lines based on these estimates.

Figure 4 shows that in low-DG participants RS was negatively related to self-worth ($B = -.10, SE = .03, p < .001$), whereas in high-DG participants it was not significantly related to the dependent measure ($B = -.02, SE = .03, ns$). Furthermore, DG was related to higher self-esteem in high-RS participants ($B = .03, SE = .01, p < .05$) but not in low-DG participants ($B = -.008, SE = .01, ns$). As in Study 1, the overall pattern of results indicated that RS was related to lower self-worth only in those with low DG. More specifically, high-RS/low-DG participants had lower levels of self-worth than both high-RS/high-DG and low-RS participants. As predicted, self-worth was not a function of DG for less vulnerable (low-RS) individuals.

Teachers' Ratings of Interpersonal Functioning

Again, the RS \times DG interaction term was significant for teacher-rated interpersonal functioning, $F(1, 149) = 7.87, p < .01$, and stayed significant when the squared terms for RS and DG were included in the analysis, $F(1, 147) = 6.80, p < .01$. Figure 5

illustrates this pattern of interaction based on the parameter estimates presented in Table 1.

The simple slope analyses for RS showed that it was negatively related to interpersonal functioning in low-DG participants ($B = -.05, SE = .03, p < .05$). In contrast, there was a trend for RS to be positively related to functioning in those high in DG ($B = .05, SE = .03, p < .07$). Furthermore, functioning was positively related to DG for participants high in RS ($B = .04, SE = .01, p < .001$) but was not significantly related to DG for those low in RS ($B = -.002, SE = .01, ns$). Thus, whereas high-RS/low-DG participants showed lower levels of interpersonal functioning than those low in RS, high-RS/high-DG participants were functioning even better than children low in RS.

Interpersonal Functioning as the Mediator of Self-Worth

Because we had both self-worth and interpersonal functioning measures in this study, it also was possible to test the hypothesis that interpersonal maladjustment may account for the observed RS \times DG interaction in the case of self-worth. Thus, we conducted multiple regression analyses on self-worth ratings, using sex, RS, DG, RS \times DG interaction, and teachers' ratings of interpersonal functioning as predictors. If interpersonal functioning accounts for variability in children's self-worth, then one would expect the RS \times DG interaction not to remain significant (or to be reduced significantly in its predictive power) in the presence of interpersonal functioning scores.

The results supported these expectations. The RS \times DG interaction that was significant in predicting self-worth previously ($B = .0056$) was not significant when we controlled for teacher-rated interpersonal functioning scores ($B = .004, SE = .003, p > .10$). The reduction in the parameter estimate ($\Delta B = .0016$) indicated that 29% of the effect of the RS \times DG interaction in predicting self-worth was accounted for by children's level of interpersonal functioning. Simple slope analyses also indicated that this overall reduction was mainly due to the effect of DG on self-worth ($B = .03$) becoming weaker in high-RS participants when controlling for teachers' interpersonal functioning ratings ($B = .022, p = .09; \Delta B = .008$, variance explained by interpersonal functioning: 27%).

We also examined the possibility that differences in self-worth account for the RS \times DG interaction observed for interpersonal functioning. The hypothesis here was that high-RS/low-DG participants' lower self-worth would explain why they are aggressive toward their peers and not liked by them. We conducted a multiple regression analysis on teacher-rated interpersonal functioning, with self-worth ratings included as a predictor in the equation. Unlike the previous set of results, the RS \times DG interaction remained significant in predicting interpersonal functioning in the presence of self-worth ratings ($B = .006, SE = .002, p < .05$). This finding suggests that teachers' ratings of interpersonal functioning were not explained by children's self-worth.

Summary and Discussion

Using different measures and participants, the results of Study 2 parallel those of Study 1. Note that although there were methodological differences between the two studies in the measurement of RS, the underlying construct tapped in both studies was anxious expectations of rejection, which the RS model proposes to be the

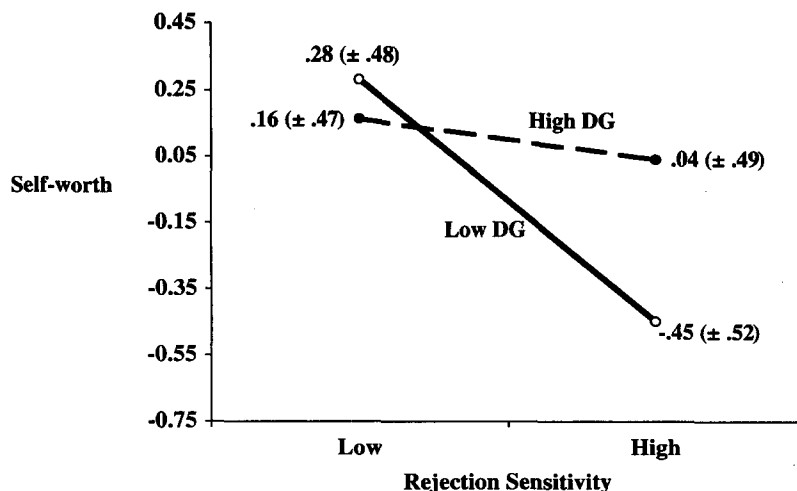


Figure 4. Self-worth as a function of rejection sensitivity (RS) and delay of gratification (DG) ability. RS \times DG interaction: $F(1, 149) = 4.53, p < .05$. Numbers in parentheses indicate 95% confidence intervals for each predicted value.

specific cognitive-affective mediator of insecure relational schemas. Consistent with Study 1, RS was negatively related to self-worth and interpersonal functioning in high-RS children unless they had high DG ability. Supporting the view that self-worth functions as an indicator of social exclusion (Leary, 1999; Leary, Tambor, et al., 1995), the results also showed that high-RS/low-DG children's reduced self-worth (compared with high-RS/high-DG children) can be, at least partly, explained by their compromised interpersonal functioning.

An interesting pattern of findings that emerged in Study 2 was that children high in RS and high in DG were perceived by their teachers as the most socially adjusted group (i.e., they were more accepted by their peers and assessed as less aggressive). This finding raises the possibility that when coupled with effective self-regulation, RS may also be associated with positive

outcomes in interpersonal relationships, at least in the low-income, minority middle school population sampled. More specifically, because high-RS people are typically concerned about preventing rejection and gaining acceptance, they are also motivated to establish and maintain smooth relationships (Ayduk et al., in press). Having the competencies that allow them to self-regulate in the face of frustrating and aversive interactions with others that otherwise tend to trigger automatic maladaptive reactions may thus enhance high-RS people's efforts to maintain good social relationships.

GENERAL DISCUSSION

The present results provide encouraging evidence for a fundamental protective mechanism that shields individuals against the

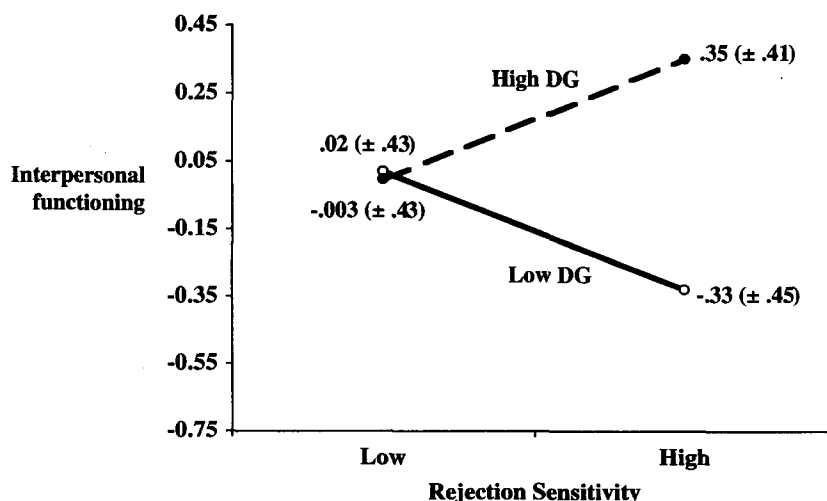


Figure 5. Teacher ratings of children's interpersonal functioning as a function of rejection sensitivity (RS) and delay of gratification (DG) ability. RS \times DG interaction: $F(1, 149) = 7.87, p < .01$. Numbers in parentheses indicate 95% confidence intervals for each predicted value.

negative interpersonal and intrapsychic consequences of their chronic personal vulnerabilities. The specific vulnerability examined was RS, a chronic personality processing disposition known to exert potentially destructive effects on social relationships and on the individual's well-being. The protective mechanism studied was the ability to strategically control attention in the service of long-term goals, as assessed in the DG paradigm.

Study 1 showed that in vulnerable (high-RS) individuals, the number of seconds that they were able to wait as preschoolers to obtain a preferred but delayed reward predicted their adult resiliency against the potentially destructive effects of RS. That is, high-RS adults who had low DG ability in preschool had less positive functioning (self-esteem, self-worth, and coping ability) compared with similarly high-RS adults who were able to delay longer. The latter were not significantly distinguishable from low-RS individuals with regard to positive functioning.

Beyond these ratings, high-RS participants also showed higher levels of cocaine-crack use and lower levels of education than those low in RS if they had low strategic self-regulation. In contrast, high-RS people who had high DG ability in preschool had relatively lower levels of drug use and higher educational levels and, in these respects, were similar to low-RS participants. Study 2 replicated this pattern of results in middle schoolers with respect to their self-worth and extended the findings to their teachers' ratings of interpersonal functioning, namely, peer acceptance and aggression. Consistent with conceptualizations of self-worth as a monitor of social acceptance (Leary, 1999; Leary, Tambor, et al., 1995), Study 2 also showed that the link between RS and self-worth was mediated by the quality of children's interpersonal relationships. That is, interpersonal functioning explained an important part of why high-RS/high-DG children had higher self-worth than high-RS/low-DG children.

The buffering hypothesis for DG is theoretically meaningful and based on the CAPS model (Mischel & Shoda, 1995), which guided the present studies, and it appears to have heuristic value. The pattern of interactions found between DG and RS was consistent with those a priori theoretical expectations in both studies. They were also consistent with recent findings showing similar moderated relationships between self-regulation and trait measures of negative emotionality (e.g., Eisenberg et al., 1998, 2000).

The data, however, are intrinsically and necessarily correlational, and definitive interpretations about the direction of causality between variables are difficult to make. Moreover, the behavioral patterns that emerge from the CAPS reflect the reciprocal, bidirectional interactions among the mediating units (i.e., CAUs) within the CAPS itself and in the person's encounters with the social environment, as discussed by Mischel and Shoda (1995, Figure 5, p. 262). Thus, a variety of different causal pathways and interaction patterns—not necessarily mutually exclusive—are likely to be involved in linking DG, RS, and functioning in the course of personality development. For example, the present finding that low-DG/low-RS individuals experienced relatively low levels of personal and interpersonal difficulties suggests that DG and RS may reciprocally interact to moderate each other's effect on functioning. In addition, DG may moderate the pathway linking compromised functioning to heightened levels of RS, a process that can play itself out as part of a self-fulfilling prophecy in the RS dynamic (Downey, Freitas, et al., 1998).

For high-RS individuals, rejection situations are likely to activate not only anxiety, expectations of rejection, and self-regulatory competencies but also other relevant CAUs such as goals and motivational states (e.g., Cantor & Blanton, 1996; Dweck & Leggett, 1988), self-efficacy beliefs (Bandura, 1977), perceptions of personal control (Thompson, 1981), and values. Thus, consistent with the CAPS model (Mischel & Shoda, 1995; see also Cervone & Shoda, 1999), numerous processes, in addition to self-regulation and its attentional mechanisms, should operate in parallel to influence whether high-RS individuals respond reflexively or reflectively in situations that activate their fears and expectations of rejection.

Overall then, no claims are made about specific single or isolated causal relationships. However, increasingly precise analyses of the particular processes involved, focusing on the role of self-regulation as well as other CAUs, provide exciting challenges for future studies. The present findings make it plain that these challenges should be well worth pursuing.

Attentional Mechanisms in Regulating the Interpersonal Self

How might the attentional mechanisms that underlie DG ability influence the relationships of high-RS individuals? There is considerable evidence that individuals who can delay gratification longer in childhood may also be better at accessing and using cognitive-attentional cooling strategies when faced with interpersonal threats (Metcalf & Mischel, 1999; Mischel, 1974, 1996). Developmental research also points out that similar attention deployment strategies are used in the management of distress even by young infants (Derryberry & Rothbart, 1997; Field, 1981; Gerardi et al., 1996; Rothbart & Ahadi, 1994; Sethi et al., 2000).

Given the role that attention seems to play in the regulation of distress and frustration, there is reason to believe that vigilance for, or the restriction of attentional focus to, rejection cues may explain the relationship between anxious rejection expectations and maladaptive responses. More specifically, vigilance may lead high-RS people to readily interpret intentional hurt in others' negative or ambiguous behavior, which in turn may justify hostile retaliation (Dodge, 1980; Dodge & Somberg, 1987).

This conceptualization suggests that in high-RS individuals who cannot deploy attention strategically, the vigilance system may become activated more readily and indiscriminately under a wider variety of interpersonal situations. By focusing exclusively on rejection features (and their own internal emotional states under potentially rejecting situations), such individuals may have difficulty encoding contextual information that may provide alternative explanations for others' behavior and facilitate taking the partner's perspective (Arriaga & Rusbult, 1998; Dodge, 1980; Dodge & Somberg, 1987; Downey & Feldman, 1996; Holtzworth-Munroe & Hutchinson, 1993). In the absence of alternative explanations, they may readily perceive intentional rejection in a perpetrator's behavior (Dodge, 1980). This may then make them susceptible to falling back on "hot scripts," interpreting the situation as confirming their worst fears.

Conversely, through strategic attention deployment, for instance through purposeful self-distraction from rejection cues, high-RS individuals with high self-regulatory ability may dampen the activation of vigilance, better attend to situational information and others' perspectives, and generate alternative explanations to that

of purposeful rejection. By making finer distinctions between intentional rejection and ambiguous behavior that may be benignly intended, they may be less susceptible to false alarms and rapid generation of fight-or-flight responses.

Individuals high in DG ability also may be better at using cognitive reappraisal strategies (Kelly, 1955; Lazarus, 1999; Mischel, 1974) that transform the subjective meaning of a threatening situation (e.g., a partner's negative behavior) to make it less threatening. For example, high-RS individuals with high self-regulatory ability may be able to construe an argument with a romantic partner as a difference in opinions, restricting the event's negativity to the here and now, rather than encoding it as a globally negative event with irreversible consequences (Mendoza-Denton, Ayduk, Mischel, Shoda, & Testa, in press). Likewise, a partner's currently negative behavior can be understood as transitory and situationally induced (e.g., due to stress), and its importance or centrality for the person's long-term goals can be attenuated by placing such behavior in a broader context.

Multistage models of social inference (e.g., Gilbert, 1989; Gilbert, Pelham, & Krull, 1988) propose that inferences about others' traits or intentions occur in two stages: (a) a relatively automatic "characterization" stage during which dispositions are attributed to an actor solely on the basis of his or her behavior and (b) a more deliberate, controlled "correction" stage in which prior characterization is modified in light of situational features. This correction stage, however, is most likely to take place if and when the observer has the motivation and the cognitive resources to do so. Applications of this model to behavior in close relationships have shown that when significant others behave in destructive ways people engage in controlled, corrective processes when they are not under time pressure and thus are able to consider the long-term consequences of responding impulsively (Yovetich & Rusbult, 1994). Under time pressure and stress, however, their reactions are likely to be driven by more automatic retaliatory impulses.

Our analysis of the role that attention management plays in the RS dynamics is consistent with the idea that for high-RS people inferences about others' behaviors may be dominated by the characterization stage unless they are able to make themselves execute correctional operations on their automatic inferences when under stress. It may thus be through such effortful processing of interpersonal conflict situations that strategic self-regulation helps high-RS individuals resist the hot pull of the immediate situation to impulsively hurt back and resolve accommodative dilemmas in favor of the long-term well-being of their relationships (Rusbult et al., 1991).

It is important to note two points for the ongoing discussion of attentional control in interpersonal situations. First, self-distraction of the kind we propose as a cooling strategy involves an ability to strategically engage attention in nonrejection-related information, for instance, situational information. Thus, it is different from thought suppression (Wegner & Wenzlaff, 1996), where one simply tries to avoid rejection-related thoughts without an effective distraction strategy that would buffer against the rebound effect. Second, "cooling" of a specific impulse (e.g., to aggress) can also be accomplished by activating an alternative hot representation that is incompatible with that impulse. When high-RS individuals feel angry and hostile, for example, those who have strategic self-regulation may be able to activate "hot" thoughts that are likely to inhibit hostile responses, such as thoughts about the negative consequences of lashing out or thoughts about how badly

one might feel later for saying or doing something destructive now (Ayduk, 1999).

Conclusion

The present data supported the hypothesized interaction between DG and RS and did so with diverse measures, populations, and cohorts. Even though generalizations to other populations are always uncertain, the diversity in age, ethnicity, cohorts, and socioeconomic status of the participants across the studies contributes to the external validity of the findings, at least within the North American culture, and the robustness of the hypothesized processes. The importance of understanding the protective role that strategic self-regulation plays in the well-being of high-RS individuals and the people around them is self-evident (Holtzworth-Munroe & Stuart, 1994; Mischel et al., 1996). The task in future research is to delineate with increasing precision how self-regulatory processes serve as protective mechanisms not only for individuals who anxiously expect rejection but also for those whose chronic vulnerabilities involve other disadvantageous and potentially dysfunctional negative dispositions.

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