

Available online at www.sciencedirect.com

Journal of Experimental Social Psychology xxx (2007) xxx–xxx

Journal of
Experimental
Social Psychologywww.elsevier.com/locate/jesp

Individual differences in the rejection–aggression link in the hot sauce paradigm: The case of rejection sensitivity [☆]

Özlem Ayduk ^{*}, Anett Gyurak, Anna Luerssen

Department of Psychology, University of California, 3210 Tolman Hall, Berkeley, CA 94720, USA

Received 6 March 2007; revised 26 June 2007

Abstract

Prior research shows that social rejection elicits aggression. In this study, we investigated whether this is moderated by individual differences in Rejection sensitivity (RS)—a processing disposition to anxiously expect, readily perceive and overreact to rejection. Participants ($N = 129$) took part in a purported web-based social interaction in which they were either rejected or not by a potential partner. Subsequently, they were given the opportunity to allocate hot sauce to the perpetrator, knowing that he/she disliked spicy food. Amount of hot sauce was used as a behavioral index of aggression. Participants in the rejection condition allocated more hot sauce to the perpetrator than those in the control condition. However, RS moderated this effect such that rejection elicited aggression in high but not in low RS people. These results held after controlling for trait neuroticism. Implications of these findings for understanding how and why rejection elicits aggression are discussed.

© 2007 Published by Elsevier Inc.

Keywords: Social rejection; Rejection sensitivity; Aggression; Hot sauce paradigm

The case of rejection sensitivity

Failed attempts to fulfill the “need to belong” lead to a variety of undesirable reactions and outcomes such as low self-esteem, depression, devaluation of social relationships, loss of self-regulation, and aggression (Leary & Baumeister, 2000). Among the most maladaptive and socially destructive reactions social rejection elicits are hostility and aggression. Leary, Kowalski, Smith, and Phillips (2003) review of recent school shootings in the US indicated that a majority of perpetrators in these shootings had experienced a pattern of chronic bullying, ostracism, malicious teasing, and/or acute rejection (such as a breakup) prior to the shooting. The effect of social

rejection in eliciting aggression is also well-established experimentally (see Leary, Twenge, & Quinlivan, 2006, for a review). For example, participants rejected by individual partners or groups in the lab delivered louder and longer blasts of noise to their rejectors (Bushman & Baumeister, 2002; Twenge, Baumeister, Tice, & Stucke, 2001), exposed them to unpleasant stimuli (Buckley, Winkel, & Leary, 2004; Harmon-Jones & Sigelman, 2001; Warburton, Williams, & Cairns, 2006), sabotaged their job opportunities (Twenge et al., 2001), and reported being more tempted to humiliate and threaten them if they met face to face (Buckley et al., 2004) than participants who were accepted.

Despite the robustness of the relationship between rejection and aggression toward one’s rejectors, there are nevertheless individual differences in people’s reactivity to rejection. Not everyone who is rejected becomes angry and aggressive to the same degree. Recent research indicates, for example, that narcissists (Bushman & Baumeister, 1998; Twenge & Campbell, 2003), and people high in perceived self-superiority and positive appraisal

[☆] This research was supported by a grant from the National Institute of Mental Health (MH0697043). We thank Geraldine Downey and Rodolfo Mendoza-Denton for their comments on an earlier draft and Celina Trujillo and David Barnes for their help in data collection.

^{*} Corresponding author. Fax: +1 510 642 5293.

E-mail address: ayduk@berkeley.edu (Ö. Ayduk).

(Kirkpatrick, Waugh, Valencia, & Webster, 2002) respond to social rejection, criticism, and insult with greater aggression toward the perceived perpetrators. Adding to this growing literature on individual differences in reactivity to social rejection, the present research focused on Rejection sensitivity (RS, Downey & Feldman, 1996) as a moderator of the rejection–aggression link.

RS has been conceptualized as the processing disposition to anxiously expect, readily perceive and overreact to rejection. The RS model (Downey & Feldman, 1996) argues that people high in RS not only anticipate rejection from others but are also highly concerned and anxious about its actual occurrence. Thus, *anxious expectations of rejection* form the core component of high RS both in its conceptualization and measurement. These fears and expectations develop out of early rejection experiences in abusive family environments (Downey, Khouri, & Feldman, 1997; Feldman & Downey, 1994) and serve as cognitive schemas that impact cognition, affect and behavior in subsequent relationships similar to working models of attachment (see Ayduk, Downey, & Kim, 2001; Feldman & Downey, 1994 for a broader discussion of the relationships between RS and attachment insecurity). More specifically, people high in RS show a readiness to see intentional rejection in the ambiguous or negative behaviors of interaction and romantic partners. High RS people in new romantic relationships, for example, interpreted their partners' aloof behavior as intentionally rejecting and hurtful (Downey & Feldman, 1996).

Previous research also shows that perceived rejection elicits a host of negative reactions in high RS people. High RS women whose partners have broken up with them during the course of an academic semester showed an increase in depressive symptoms compared to low RS women who also experienced a partner-initiated breakup (Ayduk et al., 2001). Rejection also elicits hostility to a greater degree in high RS people. For example, Ayduk, Downey, Testa, Yen, and Shoda (1999) showed in a priming-pronunciation study that the automatic mental association between rejection and hostility was stronger in high compared to low RS women (Study 1). A daily diary study of couples in relationships also showed that high RS women were more likely to get into conflicts with their partners following days on which women reported feeling highly rejected (Ayduk et al., 1999; Study 3). In laboratory discussions of relationship conflicts—a situation that typically activates concerns about and perceptions of rejection, women displayed more verbal and non-verbal signs of anger to the extent that they were high in RS (Downey, Freitas, Michaelis, & Khouri, 1998). Paralleling these findings with women, high RS men reported being more physically aggressive toward their partners if they also tried to cope with their vulnerability by seeking out intimacy and relationships as opposed to avoiding them (Downey, Feldman, & Ayduk, 2000). Presumably this occurred because being in committed close relationships created more opportunities for construing certain situations as rejection, thus,

increasing the likelihood of high RS men acting aggressively against their partners.

Most of the existing evidence linking high RS to increased hostility and aggression in response to rejection, however, is correlational. Only two studies to date examined this relationship where the presence of rejection was manipulated experimentally. Ayduk et al. (1999, Study 2) had women participate in a study allegedly examining the formation of close relationships over the internet. Some women were led to believe that the potential partner did not want to continue with the study right after having read their biosketch (rejection condition) whereas others were told that the internet interaction was not going to take place due to technical difficulties (control condition). High RS women's impressions of the partner after the rejection manipulation were less favorable than those of low RS women's. No differences emerged in the control condition. Although this study provided preliminary experimental evidence for the link between rejection and hostility among high RS people, the measurement of hostility fell short of a stringent definition of aggressive behavior. Aggression involves the intention to physically or psychologically hurt another person (Lieberman, Solomon, Greenberg, & McGregor, 1999). However, participants in Ayduk et al.'s study (1999, Study 2) were given no reason to believe that their negative evaluations of the partner would actually hurt the partner. Furthermore, impression ratings rather than observable behavior were used to operationalize aggression. In addition, this study had only female participants, thus, it is important to replicate the results in a mixed-gender sample.

The second relevant experiment that investigated the link between RS and hostility experimentally was conducted by Buckley et al. (2004, Study 2) who examined whether RS moderated the effect of acceptance–rejection feedback on affect and antisocial behavioral inclinations. Participants received continuous, minute-by-minute acceptance or rejection feedback as they answered questions about themselves to a partner who was purportedly listening to their answers via a microphone and giving them feedback on a computer screen. In this study, RS did not interact with experimental condition. High RS people reported more negative mood, less state self-esteem, and more antisocial inclinations (e.g., wanting to swear at the person if they were to meet face-to-face) overall, regardless of rejection–acceptance feedback. Thus, high RS people's hostility did not seem to be elicited specifically by rejection. To explain this finding, Buckley and colleagues speculated that the salience of the ongoing, minute-by-minute evaluation of the participants might have inadvertently activated rejection fears in high RS people even in the context of acceptance feedback. Furthermore, the measure of hostility was hypothetical ratings of antisocial inclinations, rather than actual behavior. Thus, the results from this experiment were also inconclusive about whether RS accentuates aggressive behavioral responses to rejection.

The present study therefore had several complementary aims. One aim was to examine under more controlled experimental conditions whether rejection elicited aggressive behavior in high RS people (regardless of gender) by using a well-established behavioral paradigm in which participants allocate hot sauce to their interaction partner knowing that the person does not like spicy food (Lieberman et al., 1999). Although our design is partly correlation due to our individual difference measures, such a finding would nevertheless lend greater support to a causal link between occurrence of rejection and actual aggressive behavior in the high RS personality dynamics.

At the same time, we aimed to contribute to the social psychological literature by examining RS as a dispositional moderator of the effect of rejection experiences in triggering aggression. The cognitive and affective processes that underlie the high RS dynamic and its link to aggression, such as attributions of rejecting intent (Downey & Feldman, 1996) and stronger mental associations between rejection and hostile thoughts (Ayduk et al., 1999) have been well documented in prior research. Although the present study did not directly assess these mechanisms, by documenting the role of RS as a moderator of the rejection–aggression relationship it aimed to add to our understanding of the normative processes that lead rejection to elicit aggression.

Because RS is both conceptually and empirically related to trait neuroticism (Downey & Feldman, 1996), a third goal was to examine the extent to which the relationship between RS and aggressive reactivity to rejection was specifically due to fears and expectations of rejection as opposed to a general tendency to experience anxiety and other forms of negative affect. Thus, this study also assessed and controlled for individual differences in neuroticism.

Finally, most studies on the link between rejection and aggressive behavior have compared the effect of rejection to acceptance (e.g., Buckley et al., 2004). This comparison leaves the question of whether differences between rejection–acceptance are due to rejection per se or simply to the presence of any negative outcome. Therefore, the control condition in the present study was designed to result in the same aversive social outcome as the rejection condition (i.e., lack of social interaction) but was caused by situational factors (e.g., technical difficulties in internet connection). Thus, we were able to assess the situational specificity of high RS people's aggressive behavior with greater precision.¹

¹ We did not include an acceptance condition because (a) in prior research we did not find RS to be related to responses to acceptance (Downey, Mougios, Ayduk, London, & Shoda, 2004), (b) the hot sauce paradigm measures allocation of punishment (presence vs. absence of hot sauce) and not reward and this makes it likely that a floor effect might have been observed in the acceptance condition as an artifact of the paradigm itself.

Method

Sample and procedure

Undergraduate participants ($N = 129$, 94 women) participated in a two-session study for course-credit or monetary pay (age: $M = 21.89$ years, $SD = 4.86$ years). Ethnic breakdown of the sample was 56.69% Asian, 2.33% African-American, 10.08% Hispanic, 30.23% Caucasian, and 11.62% other.²

Participants completed the Rejection Sensitivity questionnaire (RSQ, Downey & Feldman, 1996), and the big-five inventory (BFI, John & Srivastava, 1999) among other questionnaires in an initial session that was part of a larger survey study. The second session was scheduled one to two weeks after the initial session. The procedure was adapted from Ayduk et al., 1999 (Study 2). Similar paradigms have been used by other researchers to induce perceived rejection in the lab (e.g., Twenge & Campbell, 2003).

Two same-sex participants were scheduled for each session.³ After completing a short mood questionnaire, participants were told that the goal of the study was to understand how people select partners in chat rooms and dating services in which there are multiple potential partners to choose from and where typically people can not initially see each other physically. They were told that a third participant (potential partner hereafter) was randomly assigned to choose one of them to interact with based on participants' biosketches. They were told that whoever was chosen would have a 15-min chat session with the potential partner, whereas the person not chosen would complete other tasks. Subsequently, participants were asked to write a short biosketch to be emailed to the potential partner who was always referred to as Alex, but with the gender pronoun opposite to participants' sex in order to approximate a dating context. The experimenter explained that the biosketch should be as long and contain as much personal detail as they wanted and left them alone for 10 min to type their biosketch on the computer.⁴

² Ethnicity breakdowns add up to more than 100% because some participants checked more than one ethnicity.

³ In 40% of the cases, either a second participant did not sign up or cancelled their participation in the last minute. In these cases, a confederate of the same sex with the scheduled participant role played as the second participant. Whether participants were ran with a confederate or not did not moderate any of the results reported. Among those who were ran in couples, only two of the participants indicated they knew each other and excluding these participants did not change the results.

⁴ Before writing their own biosketch, participants were randomly assigned to receive one of three essays: a biosketch purportedly written by the potential partner; the same biosketch this time purportedly written by a previous participant to give participants a sense of what others in the study have written; or a neutral, distraction reading from a magazine. The goal of this manipulation was to see if participants' responses changed as a function of how much a priori information they had about the potential partner who were to choose whether to interact with them or not. However, this factor made no difference in the results, thus, will not be further discussed.

Following the biosketch instructions, participants were taken into different experimental rooms, and completed the rest of the study individually. At the end of 10-min the experimenter asked participants to stop writing and then purportedly emailed the participant's biosketch file to the potential partner. Participants were then told to wait for about 5 min for the potential partner to read both biosketches and make a decision. They were told that the potential partner would email them back his/her response. While participants waited to learn whether they were chosen, the experimenter left the room where the participants were sitting, and went to the control room that housed the central internet server for the lab. While in the control room, the experimenter randomly assigned each participant either to the rejection or the control condition. Thus, the experimental conditions of the two participants were independent of one another. In the rejection condition, the experimenter sent an email to the participants purportedly from the potential partner that contained a brief message informing them that they were not chosen ($n = 67$). In the control condition ($n = 62$), the experimenter remotely disconnected the internet signal from the participant's computer, then went back to the participant's room and informed the participant that the internet system in the lab was down. Bolstering the story, when the experimenter tried to connect to the chat site on the participant's computer, it failed to upload.

Following the experimental manipulation, participants completed several questionnaires unrelated to the present study. Subsequently, they were asked if they would mind helping the experimenter run the next study that the potential partner was supposed to take part in. All but five participants (three in the control, two in the rejection condition) agreed. The experimenter then took the participant to another room where a large container of hot sauce, spoon, non-transparent cups with lids were set out on a table. The sauce was pre-prepared following the recipe reported in McGregor et al. (1998). The experimenter told the participant that the study was investigating how specific personality variables correlated with taste preferences for different kinds of foods (e.g., spicy, salty, sweet). The experimenter informed the participants that the potential partner completed extensive personality and taste preference measures beforehand, and that the experimenter herself had to be unaware of some of this information as well as the type of food that was being tested that day. The experimenter gave participants a wooden stick and a glass of water and encouraged them to try the food themselves. 92.75% of the sample tried the hot sauce and this was not different as a function of experimental condition ($\chi^2(1, N = 124 = 1.41, p = .23)$).

At the same time, the experimenter also provided the participants with a folder containing a taste preference inventory allegedly completed by the potential partner, which they were asked to examine. The inventory was used to communicate to the participants that the potential partner disliked spicy food. On a scale from 1 to 7, the potential

partner had circled six to indicate his/her dislike of spicy food. To minimize demand characteristics and/or social desirability issues, the experimenter indicated to the participants that she was unaware of the potential partner's responses on the preference inventory. Participants were told that the potential partner would be asked to consume completely whatever amount they allocated. They were then told to use the empty cup and asked to close the lid and bring it out to the experimenter after their allocation. They were then left alone in the room to complete this task. After participants came out of the kitchen, they were thoroughly debriefed, thanked, and compensated.

Suspicion

At the end of debriefing, participants rated the extent to which they believed the cover story and the manipulation on a scale from 1 ("did not believe at all") to 7 ("believed completely"). The mean was 5.29 ($SD = 1.97$) indicating the manipulation raised relatively little suspicion. Suspicion was not different as function of experimental manipulation ($F < 1$) and controlling for this variable did not change the results reported below.

Measures and apparatus

Rejection sensitivity questionnaire (RSQ; Downey & Feldman, 1996). The RSQ measures the degree to which people expect rejection and are anxious about its occurrence (see Downey & Feldman, 1996 for details). The measure includes 18 hypothetical interpersonal situations, which afford the possibility of rejection (e.g., you ask someone you do not know well out on a date; you ask your boyfriend/girlfriend if he/she really loves you). For each situation, participants indicate their level of anxiety about the possibility of a negative outcome (1 = not anxious, 6 = very anxious) and perceived likelihood of acceptance (1 = very likely, 6 = very unlikely). The latter is reverse scored to index expectations of rejection and then multiplied by level of anxiety for each situation. The multiplicative terms are then averaged across the 18 scenarios to index overall levels of anxious expectations of rejection. The possible scores range from 0 to 36. The measure is internally reliable (Downey & Feldman, 1996) and shows good predictive utility (see Pietrzak, Downey, & Ayduk, 2005, for review).⁵

In this sample the mean RSQ score was 9.34 ($SD = 3.25, \alpha = .85$). RSQ scores did not differ by experimental group or by participants' sex ($F_s < 1$).

Neuroticism

Participants completed the BFI, which includes five subscales to measure the big-five traits. The focus of the

⁵ In this sample, RS and narcissism (NPI, Raskin & Terry, 1988) were negatively correlated ($r(123) = -.19, p < .04$). Controlling for narcissism did not change the results reported.

present study was on the neuroticism subscale, which includes eight items assessing depression, anxiety, and emotional instability (e.g., “I am someone who is depressed”, “I am someone who can be moody”). Ratings were done using a five-point scale (1 = disagree strongly, 3 = neither agree nor disagree, 5 = agree strongly). The mean score in this sample was 2.97 ($SD = .83$; $\alpha = .84$). Neuroticism was not related to experimental condition, but was significantly correlated with RS ($r(122) = .45$, $p < .0001$). Furthermore, women ($M = 3.10$, $SD = .81$) were higher in neuroticism than men ($M = 2.64$, $SD = .82$; $t(122) = 2.82$, $p = .0055$)—a finding consistent with the current literature (John & Srivastava, 1999).

Aggression

Aggression was indexed by the weight of hot sauce allocated to the potential interaction partner. All participants were given the same type of styrofoam cup keeping its weight constant. The sauce they allocated was measured using a Sunbeam Digital Electronic Postal Scale Model SP5 that measured up to 2 kg with 1 g increments. On average, participants allocated 15.16 g of sauce ($SD = 36.21$; range: 0–264 g). The distribution was positively skewed (skew = 4.99), therefore, square root transformed values were used for analyses.

Perceived spiciness

During debriefing, participants were asked to rate how spicy they thought the sauce was (1 = “not hot at all”; 7 = “extremely hot”). The mean rating was 4.22 ($SD = 1.41$), which did not differ by experimental group ($F < 1$). Data were missing from seven people on this variable and they were replaced by the mean of the distribution. Perceived spiciness was not related either to RSQ scores ($r(123) = -.11$, $p = .20$) or to experimental condition ($r(123) = .03$, $p = .74$).

Baseline angry mood

To rule out the possibility that differences in aggression could be explained by differences in baseline angry mood, participants rated their mood at the beginning of the experimental session (1 = “not at all”—7 = “a lot”). Ratings on the items “hostile,” “angry,” and “irritable,” were averaged to index angry mood ($M = 1.45$, $SD = .69$, $\alpha = .80$). One person failed to complete this questionnaire and the sample mean was used to replace missing data. Baseline angry mood was not related either to RSQ scores ($r(123) = .08$, $p = .37$) or to experimental condition ($r(123) = -.14$, $p = .10$).

Results

We first examined whether rejection elicited greater aggression than the control manipulation. General linear models (GLM) analysis was conducted on the amount of hot sauce allocated to the potential partner with experimental condition (0 = control, 1 = rejection) as the

between-subjects predictor. Anger at baseline and perceived spiciness were entered as covariates. All predictors were entered simultaneously with continuous predictors having been centered on their means. Preliminary analyses in which multiplicative terms with the covariates were also included in the analyses did not yield any significant interactions that included either covariate. Furthermore, sex did not moderate any of the results and will not be discussed further.

The results showed that people in the rejection condition allocated more hot sauce to the potential partner ($M = 3.18$, $SD = 3.22$) than people in the control condition ($M = 2.26$, $SD = 2.10$; $F(1, 121) = 4.11$, $p < .05$, $d = .34$). Baseline anger was not related to aggression ($F < 1$). People allocated less hot sauce to the degree that they thought it was spicy ($F(1, 120) = 15.96$, $p < .0001$, $b = -.69$, $d = .73$).

Next, we tested the critical moderation hypothesis by including RS and its interaction with experimental condition in the analysis. Consistent with our hypothesis, the interaction term was significant ($F(1, 118) = 8.30$, $p < .005$, $b = .42$, $d = .53$).⁶ Simple slope analyses (Aiken & West, 1991) indicated that rejection manipulation led to an increase in the amount of hot sauce allocated among those high (1 SD above the mean) in RS ($b = 2.28$, $p < .0006$, $d = .64$) but not among those low (–1 SD on the distribution) in RS ($b = -.46$, $p = .49$, $d = .13$). Furthermore, RS was positively related to hot sauce in the rejection condition ($b = .25$, $p < .008$, $d = .53$). In the control condition, this relationship was not significant ($b = -.17$, $p = .13$, $d = .28$).

To examine the predictive utility of RS against trait neuroticism the moderation analysis was first conducted while controlling for the main effect of neuroticism. The RS \times experimental manipulation interaction remained significant ($F(1, 117) = 8.13$, $p = .005$). The effect of neuroticism on aggression was not significant ($F < 1$). In separate analysis, we also included the interaction term between neuroticism and experimental condition, pitting it against the RS \times manipulation interaction. Only the RS \times manipulation interaction was significant ($F(1, 116) = 7.91$, $p < .006$: Neuroticism \times manipulation: $F < 1$).

Discussion

Findings from the present study supported previous research showing that rejection elicits aggressive behavior (Leary et al., 2006). They also showed, however, that this effect depended on individual differences in RS. Whereas high RS people responded to rejection with increased aggression, low RS people did not. These findings add to the previous research on RS (e.g., Ayduk et al., 1999; see Leary et al., 2006, for review) by establishing a causal link

⁶ The interaction between RS and experimental condition was significant ($F(1, 120) = 8.99$, $p = .003$) when there were no covariates included in the analysis.

between rejection and aggressive behavior in high RS people under more controlled experimental conditions. Furthermore, this finding held when participants' trait neuroticism was also taken into account, and thus, showed that it is specifically anxious expectations about interpersonal rejection, not a generalized disposition to experience negative affect that make people vulnerable to react to rejection with aggression.

In this study, we found participants to allocate less hot sauce to the extent that they perceived it to be highly spicy. However, by including this variable as a covariate, we statistically equated all participants on perceived spiciness. Thus, even though a spice sensitive high RS person may have allocated less hot sauce than a spice insensitive low RS person in actual numbers, by keeping the effect of perceived spiciness mathematically constant, we were able to answer the question of whether high RS people who were equally spice sensitive (or insensitive) as low RS people allocated more hot sauce to punish their rejector.

It should be noted that the findings from the presented study are relevant only to our understanding of direct aggression toward perceived rejecters but not of displaced aggression where innocent third parties may also become the target of aggressive behavior (Twenge & Campbell, 2003; Warburton et al., 2006). We reason however that if interactions with innocent third parties are perceived as potential opportunities for non-rejection experiences, we might not see RS differences in displaced aggression as high RS people may inhibit their aggressive tendencies to prevent further rejection and gain acceptance.

An interesting aspect of the moderation results illustrated in Fig. 1 is that low RS people did not behave aggressively when faced with rejection. One may ask whether we would have expected low RS people to also aggress against the rejecter, albeit to a lesser degree than high RS people. That low RS people did not show

increased aggression in response to rejection is consistent with our past findings (Ayduk et al., 1999; Studies 2 and 3) as well as research showing that only people high in narcissism respond to rejection with increased aggression (e.g., Bushman & Baumeister, 1998, 2002; Twenge et al., 2003). This finding is also theoretically expected as for low RS people who generally expect acceptance, a single rejection situation, one that is also commonly experienced in everyday life (e.g., not being the romantic interest of a potential partner) and therefore readily afford benign construals (e.g., it's simply a mismatch of our personalities) may not be strong enough to elicit aggressive behavior. That some studies show a standard increase in reactivity to rejection regardless of individual differences requires discussion however. Buckley et al. (2003) reported that anger and antisocial inclinations following rejection were not moderated by individual differences in agreeableness or RS. Although not directly related to aggression, several studies failed to find individual differences using a variety of measures (e.g., self-esteem, social anxiety) in the immediate effect of ostracism on such outcomes as self-esteem, mood, sense of belonging and the need to control (Williams, Cheung, & Choi, 2000; Zadro, Boland, & Richardson, 2006). While some of this inconsistency in the literature may be simply due to random error, we can think of three types of systematic differences among the studies that may also help explain them: differences among the studies in (1) how central concerns about rejection and acceptance are to the specific personality variable measured (e.g., rejection sensitivity which measures specifically rejection fears and expectations vs. neuroticism which measures generalized negative affect); (2) the specific rejection manipulation used (e.g., it may be more difficult to come up with alternative, benign explanations for partners behaviors in the common ostracism paradigms than the paradigm used in this study); and (3) the specific outcome variable assessed (i.e., internalizing vs. externalizing behavior). Clearly, the field would benefit from a more systematic analysis of the conditions under which rejection elicits aggressive reactivity more generally vs. only in certain types of people in future research and theorizing.

Several researchers have argued that because of the survival value of social acceptance, humans have developed mechanisms to monitor their level of acceptance–rejection and to take action to maximize acceptance when rejection is detected (e.g., Leary, 2004; Leary, Tambor, Terdal, & Downs, 1995; Pickett & Gardner, 2005; Williams & Sommer, 1997). Why do high RS people, who are particularly concerned about rejection, behave in aggressive ways to even ambiguous cues of rejection, when aggression is the very behavior that shuns out opportunities for acceptance and elicits further rejection from others (Downey et al., 1998; Leary et al., 2006)? Furthermore, how do we reconcile the link between rejection and destructive behavior by theory and research showing that rejection also elicits efforts to repair social relationships to gain acceptance and secure long-term survival (e.g., Pickett & Gardner,

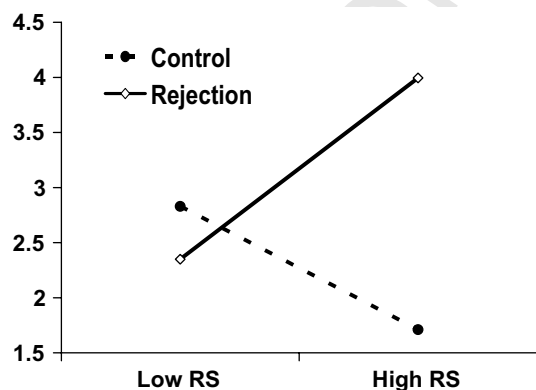


Fig. 1. Amount of hot sauce allocated as a function of experimental condition and rejection sensitivity (RS) controlling for perceived spiciness and angry mood. Notes. The hot sauce distribution has been square root transformed. The predicted values were based on the following estimates from the GLM analysis: hot sauce = 2.27 – .63(spiciousness)*** – .32(base-line anger) + .90(manipulation)* – .17(RS) + .42(RS × manipulation)**. * $p < .05$. ** $p < .01$. *** $p < .001$.

2005)? Theoretically, the possibility of future interaction may be an important determinant of whether high RS people respond prosocially or aggressively to an initial rejection. More specifically, when prevention of rejection, amendment, and future acceptance are possibilities, high RS individuals may engage in prosocial behaviors, as some evidence already suggests. For example, high RS adolescent girls reported being willing to do things they knew were wrong in order to maintain their relationships with their boyfriends (Purdie & Downey, 2000). Likewise, RS positively correlated with the tendency to self-silence, whereby one's thoughts and feelings are inhibited to prevent conflicts and rejection (Ayduk, May, Downey, & Higgins, 2003). However, when opportunities for future interaction do not exist or when the initial rejection is perceived to be irreversible as was the situation in the present study, the hypervigilance, and heightened fight-or-flight state elicited by rejection cues in high RS people (Downey et al., 2004) may automatically lead to an enactment of impulsive and retaliatory aggressive scripts. The situations under which the same underlying personality system can generate prosocial vs. antisocial behavior in response to rejection and increased belonging needs should be further examined in future research.

References

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: Sage Publications.

Ayduk, O., Downey, G., Testa, A., Yen, Y., & Shoda, Y. (1999). Does rejection elicit hostility in rejection sensitive women? *Social Cognition, 17*(2), 245–271.

Ayduk, O., Downey, G., & Kim, M. (2001). Rejection sensitivity and depressive symptoms in women. *Personality and Social Psychology Bulletin, 27*, 868–877.

Ayduk, O., May, D., Downey, G., & Higgins, T. (2003). Tactical differences in coping with rejection sensitivity: The role of prevention pride. *Personality and Social Psychology Bulletin, 29*(4), 435–448.

Buckley, K., Winkel, R., & Leary, M. (2004). Reactions to acceptance and rejection: Effects of level and sequence of relational evaluation. *Journal of Experimental Social Psychology, 40*(1), 14–28.

Bushman, B. J., & Baumeister, R. F. (1998). Threatened egotism, narcissism, self-esteem, and direct and displaced aggression: Does self-love or self-hate lead to violence? *Journal of Personality and Social Psychology, 75*(1), 219–229.

Bushman, B. J., & Baumeister, R. F. (2002). Does self-love or self-hate lead to violence? *Journal of Research in Personality, 36*(6), 543–545.

Downey, G., & Feldman, S. (1996). Implications of rejection sensitivity for intimate relationships. *Journal of Personality and Social Psychology, 70*(6), 1327–1343.

Downey, G., Feldman, S., & Ayduk, O. (2000). Rejection sensitivity and male violence in romantic relationships. *Personal Relationships, 7*(1), 45–61.

Downey, G., Freitas, A. L., Michaelis, B., & Khouri, H. (1998). The self-fulfilling prophecy in close relationships: Rejection sensitivity and rejection by romantic partners. *Journal of Personality and Social Psychology, 75*(2), 545–560.

Downey, G., Khouri, H., Feldman, S. (1997). Early interpersonal trauma and later adjustment: The mediational role of rejection sensitivity. In: D. Cicchetti, S. L. Toth (Eds.), *Rochester symposium on developmental psychology: Developmental perspectives on trauma: Theory, research, and intervention* (Vol. 8, pp. 85–114). Rochester, NY, USA: University of Rochester Press.

Downey, G., Mougios, V., Ayduk, O., London, B. E., & Shoda, Y. (2004). Rejection sensitivity and the defensive motivational system: Insights from the startle response to rejection cues. *Psychological Science, 15*(10), 668–673.

Feldman, S., & Downey, G. (1994). Rejection sensitivity as a mediator of the impact of childhood exposure to family violence on adult attachment behavior. *Development and Psychopathology, 6*, 231–247.

Harmon-Jones, E., & Sigelman, J. (2001). State anger and prefrontal brain activity: Evidence that insult-related relative left-prefrontal activation is associated with experienced anger and aggression. *Journal of Personality and Social Psychology, 80*(5), 797–803.

John, O. P., & Srivastava, S. (1999). *The big five trait taxonomy: History, measurement, and theoretical perspectives*. New York, NY, USA: Guilford Press.

Kirkpatrick, L. A., Waugh, C. E., Valencia, A., & Webster, G. D. (2002). The functional domain specificity of self-esteem and the differential prediction of aggression. *Journal of Personality and Social Psychology, 82*(5), 756–767.

Leary, M. R. (2004). The sociometer, self-esteem, and the regulation of interpersonal behavior. In R. Baumeister & K. Vohs (Eds.), *Handbook of self-regulation: Research, theory and applications* (pp. 373–391). New York, NY, USA: Guilford Press.

Leary, M. R., & Baumeister, R. F. (2000). The nature and function of self-esteem: Sociometer theory. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 32, pp. 1–62). San Diego, CA, USA: Academic Press.

Leary, M. R., Kowalski, R. M., Smith, L., & Phillips, S. (2003). Teasing, rejection, and violence: Case studies of the school shootings. *Aggressive Behavior, 29*(3), 202–214.

Leary, M. R., Tambor, E. S., Terdal, S. K., & Downs, D. L. (1995). Self-esteem as an interpersonal monitor: The sociometer hypothesis. *Journal of Personality and Social Psychology, 68*(3), 518–530.

Leary, M. R., Twenge, J. M., & Quinlivan, E. (2006). Interpersonal rejection as a determinant of anger and aggression. *Personality and Social Psychology Review, 10*(2), 111–132.

Lieberman, J. D., Solomon, S., Greenberg, J., & McGregor, H. A. (1999). A hot new way to measure aggression: Hot sauce allocation. *Aggressive Behavior, 25*(5), 331–348.

McGregor, H. A., Lieberman, J. D., Greenberg, J., Solomon, S., Arndt, J., Simon, L., et al. (1998). Terror management and aggression: Evidence that mortality salience motivates aggression against worldview-threatening others. *Journal of Personality and Social Psychology, 74*(3), 590–605.

Pickett, C. L., & Gardner, W. L. (2005). The social monitoring system: Enhanced sensitivity to social cues as an adaptive response to social exclusion. In K. D. Williams, J. P. Forgas, & W. von Hippel (Eds.), *The social outcast: Ostracism, social exclusion, rejection, and bullying* (pp. 213–226). New York, NY: Psychology Press.

Pietrzak, J., Downey, G., & Ayduk, O. (2005). Rejection sensitivity as an interpersonal vulnerability. In M. W. Baldwin (Ed.), *Interpersonal cognition* (pp. 62–84). New York, NY: Guilford Press.

Purdie, V., & Downey, G. (2000). Rejection sensitivity and adolescent girls' vulnerability to relationship-centered difficulties. *Child Maltreatment, 5*(4), 338–349.

Raskin, R., & Terry, H. (1988). A principal components analysis of the Narcissistic Personality Inventory and further evidence of its construct validity. *Journal of Personality and Social Psychology, 54*(5), 890–902.

Twenge, J. M., Baumeister, R. F., Tice, D. M., & Stucke, T. S. (2001). If you can't join them, beat them: Effects of social exclusion on aggressive behavior. *Journal of Personality and Social Psychology, 81*(6), 1058–1069.

Twenge, J. M., & Campbell, W. K. (2003). "Isn't it fun to get the respect that we're going to deserve?" Narcissism, social rejection, and aggression. *Personality and Social Psychology Bulletin, 29*(2), 261–272.

- 683 Warburton, W. A., Williams, K. D., & Cairns, D. R. (2006). When ostracism
684 leads to aggression: The moderating effects of control deprivation. *Journal*
685 *of Experimental Social Psychology*, 42(2), 213–220.
- 686 Williams, K. D., Cheung, C. K., & Choi, W. (2000). Cyberostracism:
687 Effects of being ignored over the internet. *Journal of Personality and*
688 *Social Psychology*, 79(5), 748–762.
- Williams, K. D., & Sommer, K. L. (1997). Social ostracism by coworkers:
Does rejection lead to loafing or compensation? *Personality and Social*
Psychology Bulletin, 23(7), 693–706.
- Zadro, L., Boland, C., & Richardson, R. (2006). How long does it last?
The persistence of the effects of ostracism in the socially anxious.
Journal of Experimental Social Psychology, 42, 692–697.

UNCORRECTED PROOF