

Running Head: REJECTION AND PAIN

Rejecting another Pains the Self: The Impact of Perceived Future Rejection

Zhansheng Chen

Kai-Tak Poon

The University of Hong Kong

Michael J. Bernstein

Penn State University Abington

Fei Teng

South China Normal University

(Word Count: 7384)

Author Note:

This research was supported by the Hong Kong Research Grants Council's General Research Fund (HKU742411H) and HKU seed funding programme.

Correspondence concerning to this article should be addressed to Zhansheng Chen Department of Psychology, The University of Hong Kong, Hong Kong, email: chenz@hku.hk, phone: (852) 3917-2294. The first two authors contributed equally to this work.

Abstract

The current investigation examined whether people would experience a higher level of pain after rejecting another person, especially for those high in evaluative concern, through increased perceptions of future rejection. Three experiments provide converging support to these predictions. After reliving a past rejecting experience (Experiments 1 and 2) and concurrently rejecting another person (Experiment 3), the source of rejection experienced a higher level of pain than participants in the control conditions. We also found that evaluative concern, either primed (Experiment 2) or measured (Experiment 3) moderated the above effect, such that this effect was only observed among participants high in evaluative concern, but not among those low in evaluative concern. Moreover, perceived future rejection mediated the moderating effect of evaluative concern and rejecting another person on the levels of pain people experience (Experiment 3). These findings contribute to the literature by showing a mechanism explaining why rejecting another person pains the self and who are more susceptible to this influence.

Keywords: rejection, painful feelings, evaluative concern, fear of negative evaluation

Rejecting another Pains the Self: The Impact of Perceived Future Rejection

"No man is an island, entire of itself; every man is a piece of the continent, a part of the main."

John Donne

Over the last two decades, the literature has well-documented the consequences of rejection, ostracism, and social exclusion, from the target's perspective. For example, even minimal forms of rejection elicit significant feelings of social disconnection (Wesselmann, Cardoso, Slater, & Williams, 2012; Wirth, Sacco, Hugenberg, & Williams, 2010; see Williams, 2007, 2009 for reviews) and activate regions of the brain that are associated with the detection and experience of physical pain (Eisenberger, Lieberman, & Williams, 2003; Kross, Berman, Mischel, Smith, & Wager, 2011; see MacDonald & Leary, 2005 for a review). Moreover, targets of social rejection may sometimes engage in various forms of behavior to obtain direct rewards (Poon, Chen, & DeWall, 2013) or to retaliate against the source of rejection (Twenge, Baumeister, Tice, & Stucke, 2001).

However, relatively less research attention has been devoted to examine the impact of social rejection on the *sources* of rejection. Among these investigations, one notably consistent finding is social rejection is also an unpleasant experience for those who reject another person (e.g. Ciarocco, Sommer, & Baumeister, 2001; Poulsen & Kashy, 2012; Sommer, Williams, Ciarocco, & Baumeister, 2001). The present investigation aims to extend this line of research by showing that an act of rejection increases sensory pain experience in addition to general negative feelings, and we further examine *why* this occurs. Finally, we wish to identify individuals who are particularly susceptible to pain associated with an act of rejection.

People prefer to connect with others whom they perceive as friendly and positive (Fiske, Cuddy, & Glick, 2007). In most social circumstances, people expect to receive social inclusion, and they also offer social acceptance to others (Kerr & Levine, 2008; Williams, 2007, 2009). When individuals deliberate on whether they should reject another person, they must grapple with the notion that their act of rejection may inflict pain on others and damage relationship harmony (see, for a related example, Lee, Soto, Swim, & Bernstein, 2012), which may make others perceive them negatively. This may, in turn, lead the source of rejection to perceive that others may reciprocally reject them in the future. Given that people are sensitive to minimal signals of rejection (e.g. Wesselmann et al., 2012) and that even perceiving the possibility of rejection can have significant consequences (Derfler-Rozin, Pillutla, & Thau, 2010), we predict that people will experience a higher level of pain after rejecting another person (Experiment 1).

To be sure, not all people will have elevated levels of pain after rejecting another person. It is, therefore, important to identify those who are more susceptible to this influence. We believe that evaluative concern, which refers to apprehensions people experience when they believe they may be evaluated negatively (Leary, 1983; Watson & Friend, 1969), may be critical in understanding and identifying those who are more likely to experience the pain associated with an act of rejection. People high in evaluative concern may worry about people's negative evaluations, while those low in evaluative concern may focus less on such issues. Thus, the relationship between an act of rejection and elevated level of pain should be particularly prominent for people high in evaluative concern, yet less so for people low in evaluative concern. Therefore, we also test the hypothesis that evaluative concern, either experimentally primed (Experiment 2) or dispositionally measured (Experiment 3), will moderate the effect that rejecting another person has on pain experience. In Experiment 3, we also test a mechanism underlying the aforementioned predictions. Specifically, we predict

that perceived future rejection will mediate the moderating effect of evaluative concern and an act of rejection on pain experience.

The Impact of Social Rejection on the Sources

The need to gain social acceptance is one of the most fundamental human motivations (Baumeister & Leary, 1995). People often have dramatic neuro-physiological and psychological changes when they are socially rejected and unwelcomed. For example, neuro-imaging studies have consistently demonstrated that ostracism or social rejection activates brain areas that are responsible for the affective (e.g. dorsal anterior cingulate cortex and anterior insula; Eisenberger et al., 2003) and sensory components of physical pain (e.g. secondary somatosensory cortex and dorsal posterior insula; Kross et al., 2011). Moreover, people who are rejected in an online ball tossing game by two unknown players experience an increase in social distress and negative affect (e.g. Williams, Cheung, & Choi, 2000). Worse still, people who merely *observe* an incident of rejection suffer significantly (Wesselmann, Bagg, & Williams, 2009). These examples clearly illustrate that social rejection is aversive for targets and even observers, and people can empathetically understand the pain associated with their own and other's rejection experience.

The literature has also accumulated evidence suggesting that social rejection is difficult and ego-depleting for the sources of rejection. For example, confederates, who were asked to reject participants by not bouncing the ball to them in a ball tossing task, indicated that it was difficult to administer the rejection manipulation (Williams & Sommer, 1997). Given that rejecting another person is difficult, it is not entirely surprising that deliberately ignoring coworkers for a day was effortful, especially when ostracizers felt close to their targets (Williams, Bernieri, Faulkner, Grahe, & Gada-Jain, 2000). In two experiments, Ciarocco and her colleagues (Ciarocco et al., 2001) found that participants who followed an experimenter's instruction to ostracize or ignore another person showed a reduction in

self-regulation as they were less persistent in solving unsolvable problems and demonstrated impairments in physical stamina. These findings suggest that social rejection is experienced not only negatively for the targets but also for those who subject others to social rejection.

Past research has also suggested that rejecting another person may be painful. For example, an early investigation on unrequited love found that rejecting an affective offer from another person was stressful and unpleasant (Baumeister, Wotman, & Stillwell, 1993). Recent experimental findings further suggest that after rejecting or ostracizing another person, the sources of rejection report increased feelings of negative affect and distress as well as thwarted feelings of belonging (e.g. Ciarocco et al., 2001; Poulsen & Kashy, 2012; Sommer et al., 2001).

Why might the sources of rejection experience psychological distresses and pain? One possibility may arise from the perceived consequences one may face after rejecting another person. Two reasons lead us to predict that the act of rejecting another person increases sensory pain experience through increased perception for future rejection.

First, following an act of rejection, the sources of rejection may perceive that others have formed a negative impression of them, which increases their perceptions of future rejection. Social acceptance is important for one's well-being and people are highly motivated to behave in ways that satisfy the fundamental need to belong (Baumeister & Leary, 1995). An informal social contract exists between individuals and society such that, as long as people behave in certain socially appropriate ways, individuals can expect social acceptance (c.f. Baumeister, DeWall, Ciarocco, & Twenge, 2005; DeWall, Baumeister, & Vohs, 2008). In contrast, people may not be socially accepted or liked if they behave inappropriately. Because social connection is critical for people's well-being (Baumeister & Leary, 1995), people can empathetically understand that their act of rejection may inflict pain on another person. Therefore, when individuals reject another person, they may perceive that they will damage

the harmony of their social relationship. As people normally choose to interact with individuals they perceive as positive, friendly, and cooperative (Fiske et al., 2007), the very act of rejection may lead such individuals to be concerned that they themselves will be perceived as negative, cruel, and non-cooperative. From an evolutionary perspective, individuals who damage the harmony of their social group risk eventual social rejection, given that social ostracism itself is an evolutionarily developed mechanism deployed by groups to protect their group facilitation by removing deviant members (e.g. Kurzban & Leary, 2001; Levine & Kerr, 2007). Given that people are very sensitive to cues of potential rejections (Williams, 2007, 2009) and perceptions or risks of rejection can lead to strong neuro-physiological and behavioral responses (Derfler-Rozin et al., 2010; Kross et al., 2011), we predict that increased perception of future rejection will account for people's increased pain experience following an act of rejection.

Second, the sources of rejection may concern about their act of rejection may make others engage in reciprocation of rejection, which increases their perception of future rejection. People have a normative expectation to engage in reciprocal social exchanges and behaviors, which can promote social harmony and individual well-being (e.g. Gleason, Iida, Bolger, Shrout, 2003; Rook, 1987; c.f. Gouldner, 1960). For example, in most social circumstances, people expect to experience reciprocal social interaction by offering and receiving signals of social acceptance (Kerr & Levine 2008; Williams, 2007, 2009). When individuals reject another person, they may perceive that others will behave according to the norm of reciprocity by rejecting them in the future, which in turn increases their pain experience.

While fear of rejection may prompt people to pause before engaging in social rejection, there may be individual differences that exacerbate this concern. Some individuals may be particularly concerned about being rejected if they may have inflicted severe pain on

others and damaged their relationship harmony through rejecting another person. Therefore, these individuals may be more likely to experience the pain associated with their act of rejection. The second aim of this investigation is to examine those who may be particularly susceptible to the aforementioned effect. The next section will discuss why a person's degree of *evaluative concern* may moderate the relationship between an act of rejection, perceived future rejection, and pain experience.

The Moderating Role of Evaluative Concern

By definition, evaluative concern refers to apprehensions people experience when they believe they may be evaluated negatively, which may carry implications on one's social perceptions and behaviors (Watson & Friend, 1969; Leary, 1983). For example, relative to participants low in dispositional fear of negative evaluation (FNE), those high in FNE not only tend to avoid potentially threatening social comparisons (Friend & Gilbert, 1973) and feel worse after receiving negative evaluations (Smith & Sarason, 1975), but they also tend to engage in ingratiation tactics (e.g., working harder in boring tasks to gain other's acceptance and approval; e.g., Watson & Friend, 1969). Moreover, people with high FNE tend to be more hesitant and vigilant to potential social harms and negative social interactions (Beck, Emery, & Greenberg, 1985).

Research has also shown that situational feelings of evaluative concern may negatively affect people's self-regulation and relationship satisfaction. For example, participants who are asked to focus on how others view and evaluate them demonstrate depletion in cognitive resources and impairment in executive functioning (Richeson & Trawalter, 2005). Similarly, participants who are primed with an evaluative concern mindset feel more depleted and report a higher level of negative affect following a conversation with an interaction partner (Sasaki & Vorauer, 2010).

It is also perhaps unsurprising that evaluative concern may cause miscommunication, which has been shown to increase defensive distancing and damage social relationships (Vorauer & Sakamoto, 2006). More broadly, evaluative concern can also carry negative implications for intergroup interaction (see Vorauer, 2006 for a review). In sum, the literature has consistently demonstrated that individuals high in either dispositional or situational evaluative concern tend to be sensitive and vigilant to potential negative consequences associated with their social behaviors.

Thus, there is evidence to support the prediction that when rejecting another person, individuals who are sensitive to evaluative concern may be particularly prone to the perception that they will be rejected in the future. In contrast, individuals who are not sensitive (or less sensitive) to negative evaluations may not anticipate these consequences. Therefore, the increased perception of future rejection and experience of pain following rejecting another person should be more readily observed among participants high in evaluative concern than those low in evaluative concern. Specifically, we predict that perceived future rejection should mediate the interactive effect of evaluative concern and an act of rejection on pain experience.

Current Research

Three experiments tested the hypothesis that an act of rejection elicits pain experience. Participants were first exposed to a manipulation of social rejection, either by recalling a past experience of rejecting others (Experiments 1 and 2) or by rejecting an applicant of a competitive award (Experiments 3). Afterwards, their pain experience was assessed using two measures, including the Faces Pain Scale - Revised (Bieri, Reeve, Champion, & Addicoat, 1990; Chen, Williams, Fitness & Newton, 2008) and the McGill Pain Questionnaire- Short Form (SF-MPQ; Melzack, 1987; Experiment 2). We also examined whether evaluative concern, both experimentally primed (Experiment 2) and dispositionally measured

(Experiment 3), would moderate the predicted effect of rejecting another person on pain experience. Finally, in Experiment 3, we also examined whether anticipations of future rejection mediated the moderating effect of rejecting another person and evaluative concern on pain experience.

Experiment 1

Experiment 1 aimed to examine the effect of rejecting another person on pain experience. We also measured participants' affect to rule out its potential confounding effect. We predicted that the rejecting another person would elicit pain experience, even after controlling potential changes in affect.

Method

Participants and design. Eighty-nine individuals in the United States (34 males, mean age = 30.82, $SD = 12.14$) completed this study for a payment of US\$0.2. They were recruited through Amazon's Mechanical Turk (e.g., Bernstein & Benfield, 2013; Zell & Bernstein, 2013; for review see Buhrmester, Kwang, & Gosling, 2011). Participants were randomly assigned to the rejecting, accepting, or neutral control condition.

Procedures and materials. Participants in the rejecting and accepting conditions first recalled and wrote down a past experience in which they themselves rejected/excluded or accepted/included another person (e.g. Williams, Shore, & Grahe, 1998). Participants in the neutral control condition recalled and wrote down what they normally did in a typical Wednesday afternoon. Afterwards, participants responded to two items, "I rejected another person" and "Someone was rejected by me" (1 = *not at all*; 7 = *extremely*), which were averaged to check the manipulation ($r = .92, p < .001$).

Next, participants completed the Positive Affect and Negative Schedule (PANAS; Watson, Clark, & Tellegen, 1988), on a five-point scale (1 = *not at all*; 5 = *extremely*). The scores were averaged to provide separate indices of positive affect ($\alpha = .91$) and negative

affect ($\alpha = .91$). Finally, participants' current pain experience was assessed by the Faces Pain Scale - Revised, in which human faces (differing in terms of the pain intensity they express) were distributed across an 11-point scale (0 = *no pain*, 10 = *intense pain*). Participants were asked to identify which face best expressed the level of pain they were currently experiencing (e.g. Bieri et al. 1990; Chen et al., 2008).

Results and Discussion

Manipulation check. A one-way ANOVA revealed significant variations among the three experimental conditions, $F(2, 86) = 56.62, p < .001, \eta_p^2 = .57$. Post-hoc tests showed that participants in the rejecting condition ($M = 4.36; SD = 1.63$) agreed more with the questions assessing whether they had rejected another person than did participants in the accepting condition ($M = 1.43; SD = .70$), $F(1, 86) = 88.91, p < .001$, and participants in the neutral control condition, ($M = 1.60; SD = 1.04$), $F(1, 86) = 81.78, p < .001$. The ratings by participants in the accepting and control conditions did not differ, $F(1, 86) = .29, p = .59$. Thus, the manipulation was effective.

Positive and negative affect. A one-way ANOVA on positive affect revealed significant variations among the three experimental conditions, $F(2, 86) = 4.41, p < .02, \eta_p^2 = .09$. Post-hoc tests showed that participants in the rejecting condition ($M = 2.43; SD = .85$) had lower level of positive affect than did participants in the accepting condition ($M = 3.13; SD = .92$), $F(1, 86) = 8.38, p < .01$, and participants in the neutral control condition, ($M = 2.93; SD = .98$), $F(1, 86) = 4.34, p = .04$. The positive affect did not differ among participants in the accepting and neutral control condition, $F(1, 86) = .72, p = .40$.

Moreover, another one-way ANOVA on negative affect revealed significant variations among the three experimental conditions, $F(2, 86) = 7.66, p = .001, \eta_p^2 = .15$. Post-hoc tests showed that participants in the rejecting condition ($M = 1.98; SD = .84$) had higher level of negative affect than did participants in the accepting condition ($M = 1.32; SD = .58$), $F(1, 86)$

= 13.81, $p < .001$, and participants in the neutral control condition, ($M = 1.47$; $SD = .56$), $F(1, 86) = 8.67$, $p < .01$. The negative affect did not differ among participants in the accepting and neutral control condition, $F(1, 86) = .69$, $p = .41$.

Pain experience. For our primary DV, a one-way ANOVA revealed significant variations among the three experimental conditions, $F(2, 86) = 10.89$, $p < .001$, $\eta_p^2 = .20$. Moreover, this effect still was present even when positive and negative affect were controlled, $F(2, 84) = 3.52$, $p = .03$, $\eta_p^2 = .08$. Post-hoc tests showed that participants in the rejecting condition ($M = 3.52$; $SD = 2.76$) experienced a higher level of pain than did participants in the accepting condition ($M = 1.29$; $SD = 2.40$), $F(1, 86) = 14.14$, $p < .001$, and participants in the neutral control condition, ($M = 1.00$; $SD = 1.57$), $F(1, 86) = 18.43$, $p < .001$. The level of pain did not differ among participants in the accepting and neutral control condition, $F(1, 86) = .22$, $p = .64$.

Experiment 1 provided initial evidence that an act of rejection increases specific sensory pain experience, even after controlling the effects of general affect. To be sure, not all people would experience an elevated level of pain following rejecting another person. Therefore, it was desirable to examine who are more prone to the pain associated with their act of rejection. Specifically, we tested whether evaluative concern would moderate the effect of rejecting another person on pain experience. People high in evaluative concern tend to overly worried about the negative consequences following their behavior (e.g. Leary, 1983). Therefore, they may be particularly prone to experience the pain associated with rejecting another person. Experiment 2 was conducted to test this prediction.

Experiment 2

Experiment 2 aimed to examine whether the effect of rejecting another person on pain experience was moderated by people's level of evaluative concern. Moreover, to provide multi-method converging evidence, we adopted another well-validated pain measure that

enabled us to more accurately examine whether participants would sensationally experience the pain following an act of rejection (McGill Pain Questionnaire- Short Form; SF-MPQ; Melzack, 1987).

Method

Participants and design. One hundred and forty-nine individuals in the United States (72 males, mean age = 32.11, $SD = 12.24$) were recruited through Amazon's Mechanical Turk to participate in this study for a payment of US\$0.2. They were randomly assigned to one condition in a 2 (Rejection: rejecting vs. accepting) by 2 (Evaluative Concern: concern vs. no concern) between-subject design.

Procedures and materials. Previous research has suggested people's beliefs and attitudes can be situationally influenced by reading an article (e.g. Chiu, Hong, & Dweck, 1997, Chen, DeWall, Poon, & Chen, 2012). Similarly, in this experiment, participants were first exposed to an experimental manipulation of evaluative concern via reading a BBC-News style article ostensibly written by a famous psychologist. By random assignment, participants in the evaluative concern condition read that scientific research over the decades showed that people needed to be concerned about the negative evaluations from others as they would bring various negative consequences, while participants in the no concern condition read that people did not need to be concerned about these evaluations as they would not bring various negative consequences, contrary to layperson beliefs.

After reading the article, participants indicated the extent to which they agreed with the two statements, "I am concerned about negative evaluations from others", and "The arguments stated above are convincing", on a seven-point scale (1 = *strongly disagree*; 7 = *strongly agree*). The first statement checked the manipulation of evaluative concern, and the second statement checked whether the two articles were perceived as equally convincing.

Next, as in Experiment 2, the feelings of rejecting (vs. accepting) another person was induced by recalling and writing down a past experience in which they themselves rejected/excluded or accepted/included another person (e.g. Williams, Shore, & Grahe, 1998). Afterwards, participants responded to the same two-item manipulation check questions, "I rejected another person" and "Someone was rejected by me" on a seven-point scale (1 = *strongly disagree*; 7 = *strong agree*), which were averaged to check the manipulation ($r = .83$, $p < .001$).

Finally, participants' pain experience was assessed by McGill Pain Questionnaire-Short Form (SF-MPQ; Melzack, 1987). SF-MPQ consisted of 15 descriptors, in which 11 described the sensory dimension (e.g. throbbing, shooting) and 4 described the affective dimension of the pain experience (e.g. tiring-exhausting, sickening). Participants rated these descriptors on a 4-point intensity scale (0 = *none*; 3 = *severe*). Scores were summed respectively to index the sensory ($\alpha = .91$) and affective ($\alpha = .81$) dimension of pain experience. Participants also completed the Faces Pain Scale - Revised (Bieri et al., 1990; Chen et al., 2008), as in Experiment 1, to index participants' overall pain experience. A debriefing followed.

Results and Discussion

Manipulation checks. A one-way ANOVA showed that participants in the evaluative concern condition ($M = 4.76$; $SD = 1.43$) were more concerned about negative evaluations from others than were participants in the no concern condition ($M = 3.86$; $SD = 1.74$), $F(1, 147) = 11.80$, $p = .001$, $\eta_p^2 = .07$. Moreover, participants perceived that the article in the evaluative concern condition ($M = 5.03$; $SD = 1.38$) and that in the no concern condition ($M = 4.83$; $SD = 1.44$) were equally convincing, $F(1, 147) = .71$, $p = .40$. Also, participants in the rejecting condition ($M = 5.03$; $SD = 1.62$) agreed more with the statement that they had

rejected another person than did participants in the accepting condition ($M = 2.71$; $SD = 1.56$), $F(1, 147) = 79.56$, $p < .001$, $\eta_p^2 = .35$. Therefore, both manipulations were effective.

SF-MPQ (sensory). We expected that after recalling a past experience of rejecting another person, participants primed with evaluative concern would experience a higher level of pain than participants primed with no evaluative concern. A 2 x 2 ANOVA revealed a significant main effect of rejecting/accepting experience, $F(1, 145) = 4.96$, $p < .03$, $\eta_p^2 = .03$, while the main effect of evaluative concern was not significant, $F(1, 145) = 1.34$, $p = .25$, $\eta_p^2 = .01$. This was qualified, however, by the predicted significant 2x2 interaction between evaluative concern and rejecting experience on participants' sensory dimension of pain experience, $F(1, 145) = 6.36$, $p = .01$, $\eta_p^2 = .04$ (see Figure 1a).

Among participants in the rejecting condition, participants in the evaluative concern condition ($M = 7.71$, $SD = 9.00$) reported a higher level of sensory pain experience than did participants in the no concern condition ($M = 3.60$, $SD = 5.79$), $F(1, 145) = 6.31$, $p = .01$. Among participants in the accepting condition, however, the sensory pain experience of participants in the evaluative concern condition ($M = 2.41$, $SD = 4.40$) did not differ from that of participants in the no concern condition ($M = 3.93$, $SD = 7.19$), $F(1, 145) = 1.00$, $p = .32$.

Additional analyses revealed that among participants in the evaluative concern condition, participants in the rejecting condition reported higher levels of sensory pain experience than participants in the accepting condition, $F(1, 145) = 10.81$, $p = .001$. In contrast, among participants in the no concern condition, levels of sensory pain experience of participants in the rejecting condition did not differ from that of participants in the accepting condition, $F(1, 145) = 0.05$, $p = .82$. This is consistent with our predictions and with the findings from Experiment 1.

SF-MPQ (affective). Another 2 x 2 ANOVA revealed a significant interaction effect of evaluative concern and rejecting experience on participants' affective dimension of pain

experience, $F(1, 145) = 4.46, p < .04, \eta_p^2 = .03$ (see Figure 1b). Neither the main effect of rejecting/accepting experience, $F(1, 145) = 3.46, p = .07, \eta_p^2 = .02$, nor the main effect of evaluative concern was significant, $F(1, 145) = 1.66, p = .20, \eta_p^2 = .01$.

With respect to the interaction, among participants in the rejecting condition, participants in the evaluative concern condition ($M = 3.00, SD = 3.17$) reported a higher level of affective pain experience than did participants in the no concern condition ($M = 1.54, SD = 2.58$), $F(1, 145) = 5.40, p = .02$. Among participants in the accepting condition, the affective pain experience of participants in the evaluative concern condition ($M = 1.30, SD = 1.88$) did not differ from that of participants in the no concern condition ($M = 1.65, SD = 2.66$), $F(1, 145) = 0.37, p = .54$.

Additional analyses revealed that among participants in the evaluative concern condition, participants in the rejecting condition reported higher levels of affective pain experience than participants in the accepting condition, $F(1, 145) = 7.57, p < .01$. In contrast, among participants in the no concern condition, levels of affective pain experience of participants in the rejecting condition did not differ from that of participants in the accepting condition, $F(1, 145) = 0.03, p = .86$. This too is consistent with our hypotheses and with the finding from Experiment 1.

Faces- Pain Scale - Revised. The scores of the Faces Pain Scale- Revised were used to index overall pain experience. Another 2 x 2 ANOVA revealed the predicted, significant interaction effect of evaluative concern and rejecting experience on participants' overall pain experience, $F(1, 145) = 4.07, p < .05, \eta_p^2 = .03$ (see Figure 1c). The main effect of rejecting/accepting experience was significant, $F(1, 145) = 13.64, p < .001, \eta_p^2 = .09$, while the main effect of evaluative concern was not significant, $F(1, 145) = 1.46, p = .23, \eta_p^2 = .01$.

Among participants in the rejecting condition, participants in the evaluative concern condition ($M = 2.97, SD = 2.86$) reported a higher level of overall pain experience than

participants in the no concern condition ($M = 1.86$, $SD = 2.30$), $F(1, 145) = 4.86$, $p < .03$.

Among participants in the accepting condition, the overall pain experience of participants in the evaluative concern condition ($M = 1.28$, $SD = 1.65$) did not differ from that of participants in the no concern condition ($M = 1.00$, $SD = 1.43$), $F(1, 145) = 0.55$, $p = .46$.

Additional analyses revealed that among participants in the evaluative concern condition, participants in the rejecting condition reported higher levels of overall pain experience than did participants in the accepting condition, $F(1, 145) = 15.64$, $p < .001$. In contrast, among participants in the no concern condition, levels of overall pain experience of participants in the rejecting condition did not differ from that of participants in the accepting condition, $F(1, 145) = .88$, $p = .35$.

Experiment 2 provided additional support for our prediction that an act of rejection increases pain experience. More importantly, it also contributed to the literature by showing that that evaluative concern moderated the effect of rejecting on pain experience, such that only participants primed with high evaluative concern reported an increased level of sensory and affective pain experience after recalling a past act of rejection. In contrast, participants primed with low evaluative concern did not report an elevated level of pain experience after recalling a past act of rejection.

Although the first two experiments provided converging support for our predictions, there were limitations and questions remained unresolved. First, the experimental manipulation adopted in Experiments 1 and 2 required participants to recall past acts of rejection and involved retrospective memories, which might be less controlled and more confounded. It was desirable to adopt another paradigm, which gave participants an opportunity to concurrently reject another person. Second, the mechanism underlying the relationship between rejecting another person and pain experience needs further investigation. Perception of future rejection might explain why some people would experience a higher

level of pain following an act of rejection. Experiment 3 was conducted to address these issues.

Experiment 3

The results of Experiment 2 supported the hypothesis that individuals who were primed with evaluative concern would experience the highest level of pain following rejecting another person. Experiment 3 aimed to extend Experiment 2 in three ways. First, we examined whether individual differences in evaluative concern moderated the effect of rejecting another person on pain experience. Second, instead of recalling a past experience, we manipulated the act of rejection versus acceptance through a concurrent experience. Third, we tested whether perceived future rejection mediated the moderating effect of evaluative concern and rejecting another person on pain experience.

Method

Participants and design. One hundred and nine undergraduates (40 males; mean age = 20.71; $SD = 1.81$) from a university in Hong Kong participated in exchange for HK\$50. They were randomly assigned to one of the two experimental conditions (rejecting vs. accepting).

Procedure and materials. After the informed consent, participants first completed the brief version of the Fear of Negative Evaluation Scale (Leary, 1983). The scale had 12 items, including, “I am afraid that others will not approve of me” and “I am usually worried about what kind of impression I make” on a 5-point scale (1 = *not at all characteristic of me*; 5 = *completely characteristic of me*). Scores were averaged to index participants' level of evaluative concern ($\alpha = .80$).

Next, participants were exposed to a manipulation of social rejection, which was adopted and modified from past research (c.f. Zhou et al., 2009). Specifically, they were told that the department had competitive thesis prizes for outstanding theses, and that they would

like to receive input from students on how to allocate the prizes. Each participant was given two short outlines of students' theses. By random assignment, participants were instructed to write either a recommendation letter (accepting condition) or a rejection letter (rejecting condition) to one of the thesis students. Participants were given as much time they needed to write the letter, and they could choose the letter recipient based on their own decision.

Next, participants indicated the extent to which they agreed with the two statements "I have written a rejection letter" and "I have rejected the letter recipient" on a 7-point scale (1 = *not at all*; 7 = *extremely*). Scores were average to check the rejecting/accepting manipulation ($r = .78, p < .001$).

Participants then completed a five-item measure to assess their perceived rejection potential from others (e.g. "others will reject me"; "others will accept me (R)"; 1 = *not at all*; 7 = *extremely*; $\alpha = .67$). Finally, the pain experience was measured by the Faces Pain Scale - Revised as in Experiment 1 and 2. A debriefing followed.

Results and Discussion

Manipulation check. Participants in the rejecting condition ($M = 4.85; SD = 1.20$) agreed more with the manipulation check items than participants in the accepting condition ($M = 2.01; SD = .92$), $F(1, 107) = 190.57, p < .001, \eta_p^2 = .64$. Thus, the manipulation was effective.

Perceived future rejection. A multiple regression analysis was conducted (Aiken & West, 1991) to examine whether level of evaluative concern interacted with the rejecting/accepting condition in predicting perceived rejection likelihood. The experimental condition was coded as 1 (rejecting) and -1 (accepting), and fear of negative evaluation scores were centered. The results revealed a significant main effect of evaluative concern, $b = .26, se = .12, t(105) = 2.10, p < .04$, and the rejecting/accepting experience, $b = .19, se$

= .08, $t(105) = 2.32$, $p = .02$. More importantly, the predicted two-way interaction emerged, $b = .26$, $se = .12$, $t(105) = 2.11$, $p < .04$ (see Figure 2a).

Among participants high in evaluative concern (1 SD above the mean), participants in the rejecting conditions perceived a greater likelihood of rejection from others than participants in the accepting condition, $b = .36$, $se = .11$, $t(105) = 3.13$, $p = .002$. However, among participants low in evaluative concern (1 SD below the mean), the perceived rejection likelihood did not differ across the rejecting/accepting condition, $b = .02$, $se = .12$, $t(105) = .14$, $p = .89$. Furthermore, among participants in the rejecting condition, evaluative concern was positively associated with perceived rejection likelihood, $b = .52$, $se = .18$, $t(105) = 2.92$, $p = .004$. This association was not observed among participants in the accepting condition, $b = -.001$, $se = .17$, $t(105) = -0.01$, $p = .99$.

Pain experience. Another multiple regression analysis was conducted to examine whether evaluative concern interacted with the rejecting/accepting in predicting pain experience. The results revealed significant main effects of evaluative concern, $b = .78$, $se = .32$, $t(105) = 2.44$, $p = .02$, and the rejecting/accepting experience, $b = .60$, $se = .21$, $t(105) = 2.83$, $p < .01$. More importantly, the predicted two-way interaction emerged, $b = .71$, $se = .32$, $t(105) = 2.24$, $p = .03$ (see Figure 2b).

Among participants high in evaluative concern, participants in the rejecting condition experienced a higher level of pain than did participants in the accepting condition, $b = 1.07$, $se = .30$, $t(105) = 3.59$, $p = .001$. As predicted, however, among participants low in evaluative concern, the pain experience did not differ across the rejecting/accepting condition, $b = .12$, $se = .30$, $t(105) = .41$, $p = .68$. Furthermore, among participants in the rejecting condition, evaluative concern was positively associated with pain experience, $b = 1.49$, $se = .46$, $t(105) = 3.25$, $p = .002$. This association was not observed among participants in the accepting condition, $b = .06$, $se = .44$, $t(105) = 0.14$, $p = .89$.

Mediation Analysis

We aimed to examine whether the anticipations of future rejection accounted for the interactive effect of the rejecting experience and evaluative concern on the experience of pain, as indicated by the Faces Pain Scale - Revised (see Muller, Judd, & Yzerbyt, 2005). A bootstrapping analysis (with 5000 iterations; Preacher & Hayes, 2004, 2008) was conducted. The experimental condition was coded as 1 (rejecting) or -1 (accepting), and the scores of fear of negative evaluation were centered. The interaction term between the two predictor variables was created to be the predictor, the averaged perceived future rejection score was the mediator, and the overall pain experience was the criterion variable. The two predictor variables were included as covariates in the model. The 95% confidence interval for the indirect path coefficient was 0.04 to 0.54, suggesting that the indirect effect was significant because the interval did not include zero (see Figure 3). Therefore, perceived future rejection mediated the interactive effect of fear of negative evaluation and fear of negative on pain experience.

Coupled with Experiment 2, the results support our hypothesis that people who are concerned about the negative evaluations from others, whether situationally induced or dispositionally measured, would experience a higher level of pain after rejecting another person. In contrast, those who did not concern about these evaluations did not have increased pain experience after rejecting another person.

General Discussion

Previous research has demonstrated that an act of rejecting another person is ego-depleting and difficult (e.g. Ciarocco et al., 2001) and causes distress (e.g. Poulsen & Kashy, 2012). However, a question remained as to why the sources of rejection have experienced a higher level of sensory pain and what perceiver characteristics would make

people particularly susceptible to this phenomenon. The present investigation examined one cognitive mechanism for such an effect.

“No man is an island,” the opening quote from John Donne suggests that humans are social animals that engage in reciprocal social interactions by offering and receiving social inclusionary signals. The sustainable development of these reciprocal relationships promotes social, physical and psychological well-being (Baumeister & Leary, 1995). Therefore, people tend to maintain reciprocal social inclusion (Wesselmann, Wirth, Pryor, Reeder, & Williams, 2013). However, an act of rejecting another person may inflict severe pain on others and damage relationship harmony, thus making others perceive the source of rejection negatively. Therefore, the source of rejection may be more likely to have a perception that they are at risk of potential future rejection from others. Given that people have strong neuro-physiological and behavioral reactions to rejection cues and perceptions (e.g. Derfler-Rozin et al., 2010; Kross et al., 2011; Wesselmann et al., 2012), we proposed that people would perceive increased potential of future rejection after they had rejected another person, which in turn leads to increased pain experience. Moreover, these relationships should be more readily observed among people high in evaluative concern than those low in evaluative concern.

The findings from three experiments provide converging support for these predictions. The feelings of rejecting another person were induced via relived a past rejection (Experiments 1 and 2) and enacted a concurrent rejection (Experiments 3). The source of rejection experienced a higher level of pain, as indicated by the Faces Pain Scale - Revised (Bieri et al., 1990; Chen et al., 2008; Experiments 1 to 3), and McGill Pain Questionnaire-Short Form (SF-MPQ; Melzack, 1987; Experiment 2). In Experiments 2 and 3, we also found that situational priming and individual differences in evaluative concern moderated the observed relationship. The above effect was only observed among participants high in evaluative concern, while those low in evaluative concern did not experience an elevated

level of pain following rejecting another person. Moreover, perceived rejection from others mediated the moderating effect of evaluative concern and rejecting another person on pain experience (Experiment 3).

The present research provides further support of people's vigilance to cues of rejection. Evolutionary psychologists have suggested that people should be overly-sensitive to signals of potential rejection because misses are much more costly than are false alarms as misses often threaten one's chance of survival (Williams, 2007). Indeed, one popular paradigm commonly used to induce feelings of rejection is to have participants anticipate future rejection (future-alone paradigm; see Twenge et al., 2001). However, past research has devoted significantly less attention to the antecedents or factors that trigger the perception that one will be rejected. The present research contributes to the literature by showing that an act of rejecting another person can lead to the perception of future rejection, which in turn elicits subsequent pain experience.

This research also creates new avenues for future investigations. First, are there behavioral consequences after rejecting another person? Because the pain associated with the pain of rejection is meant to warn individuals who may be about to engage in an act which threatens their own social inclusion, people who experience the most severe level of pain following rejecting another person should also be the most highly motivated to engage in various behaviors that are meant to show they are in fact a "valued" member of the group. For instance, will the perception that they will be rejected motivate sources of rejection to behave pro-socially? Also, will they be more likely to engage in social compensation in group tasks? Will they be less likely to reject (or more likely to accept) another person in the future? Future research can address these and other behavioral consequences following an act of rejection.

Second, the present research shows that the source of rejection experienced a higher level of pain after rejecting another person. However, under certain circumstances, it may be the case that the source of rejection may not experience pain (or may even enhance their well-being) following their act of rejecting others. For example, when people feel burdened and deprived of important resources (e.g. Bowling, Beehr, & Swader, 2005; Jung, 1990) due to too many requests for support, turning down some of the requests can be beneficial and bring feeling of relief to the source of rejection. Moreover, will people still experience this pain when they reject someone who deserves the rejection experience, such as people who behave in ways that are harmful to the group's well-being? Social rejection developed in part because it facilitates group survival insofar as it enables groups to exclude individuals who threaten group success (Kurzban & Leary, 2001). Thus, it would be counter-productive to experience pain due to perception of future rejection when ostracizing or rejecting, for example, criminals or cheaters (both of whom threaten group survival). In Experiments 1 and 2, where individuals recalled a time in which they rejected another person, it is likely that those rejections did not necessarily include individuals who would be universally acceptable as targets of exclusion. In our Experiment 3, the targets of rejection were likely not seen as threatening to the group as a whole and the research being evaluated were of high quality, and thus rejecting those individuals may have been seen as not necessarily "justified." Future research should examine the target characteristics that eliminate the concern of future rejection from others when the target is themselves ostracized. In contrast, social rejection in close relationships (e.g. refused to help romantic partners or children to attain a goal) may universally be perceived as inappropriate, and thus rejecting these requests may not be justified. Future research may also examine whether rejection in certain close relationships may even magnify the pain associated with the act of rejection.

Third, we found that participants high in evaluative concern experienced the highest level of pain following an act of rejecting another person. Future research may examine whether people with other personality characteristics will be more prone to this effect. In particular, we believe that one reason why people have increased perceptions of future rejection following their act of rejection arises from their empathetic understanding that their act may inflict severe pain on others and damage relationship harmony. Thus, they may anticipate or forecast that other people may perceive them negatively and thus be more likely to reciprocally reject them in the future. Therefore, it is likely that people high in dispositional empathy or affective forecasting may be particular prone to experience the pain associated with rejecting another person. Moreover, given that people high in dispositional rejection sensitivity (Downey & Feldman, 1996), need to belong (Leary, Kelly, Cottrell, & Schreindorfer, in press), and social anxiety (Brown, Turovsky, Heimberg, Juster, Brown, & Barlow, 1997) are hyper-sensitive to negative social signals, it may be that these individuals experience more pain following an experience in which they reject others. Examining the role of these traits may strengthen our understanding in the relationship between an act of rejection, perceived future rejection and pain experience.

Finally, we found that perceived future rejection accounts for the moderating effect of the act of rejection and evaluative concern on pain experience in Experiment 3. In this experiment, we measured participants' dispositional feelings of evaluative concern. Future research may examine this mediation model by manipulating evaluative concern to provide causal evidence. Further, it is also likely that other psychological processes may play a role in driving the interactive effect of rejecting another person and evaluative concern on pain experience. For example, we speculate that one's perceived self-image and self-worth may contribute to the effect. People normally want to view themselves positively; however, an act of rejecting another person (especially when the rejection lacks sufficient justifications) may

let them perceive that they are a bad person. The threatening of the sense of self-image may mediate the effect of rejecting another person on pain experience. Moreover, according to the Sociometer Theory (Leary, Tambor, Terdal, & Downs, 1995), self-esteem was served as an important interpersonal monitor of relationship satisfactions. The act of rejecting another person may decrease one's relationship satisfaction and state self-esteem, which in turn increases the level of pain they experience. Future research may test these potential mediators.

Conclusion

People normally expect to engage in reciprocal social interaction by offering and receiving social acceptance. The act of rejection may thus raise the perception of potential future rejection from others and increase pain experience. These relationships are particularly strong among people with high evaluative concern. The present investigation contributes to the literature by showing that increased perception of future rejection helps to explain why rejecting another person is painful, and people high in evaluative concern are most susceptible to this influence.

References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*, 497-529.
- Baumeister, R. F., DeWall, C. N., Ciarocco, N. J., & Twenge, J. M. (2005). Social exclusion impairs self-regulation. *Journal of Personality and Social Psychology*, *88*, 589-604.
- Baumeister, R. F., Wotman, S. R., & Stillwell, A. M. (1993). Unrequited love: On heartbreak, anger, guilt, scriptlessness, and humiliation. *Journal of Personality and Social Psychology*, *64*, 377-394.
- Beck, A. T., Emery, G., & Greenberg, R. L. (1985). *Anxiety disorders and phobias: A cognitive perspective*. New York: Basic Books.
- Bernstein, M. J. & Benfield, J. A. (2013). Past perspectives are related to present relationships: Past-positive and negative time perspectives differentially predict rejection sensitivity. *The Psychological Record*, *63*, 615-628.
- Bieri, D., Reeve, R. A., Champion, G. D., & Addicoat, L. (1990). The faces pain scale for the self-assessment of the severity of pain experienced by children: Development, initial validation, and preliminary investigation for ratio scale properties. *Pain*, *41*, 139-150.
- Bowling, N. A., Beehr, T. A., & Swader, W. M. (2005). Giving and receiving social support at work: The roles of personality and reciprocity. *Journal of Vocational Behavior*, *67*, 476-489.
- Brown, E. J., Turovsky, J., Heimberg, R. G., Juster, H. R., Brown, T. A., & Barlow, D. H. (1997). Validation of the social interaction anxiety scale and the social phobia scale across the anxiety disorders. *Psychological Assessment*, *9*, 21-27.

- Buhrmester, M. D., Kwang, T., Gosling, S. D. (2011). Amazon's mechanical turk: A new source of inexpensive, yet high-quality data? *Perspectives on Psychological Science*, 6, 3-5.
- Ciarocco, N. J., Sommer, K. L., & Baumeister, R. F. (2001). Ostracism and ego depletion: The strains of silence. *Personality and Social Psychology Bulletin*, 27, 1156-1163.
- Chen, Z., DeWall, C. N., Poon, K. T., & Chen, E. W. (2012). When destiny hurts: Implicit theories of relationships moderate aggressive responses to ostracism. *Journal of Experimental Social Psychology*, 48, 1029-1036.
- Chen, Z., Williams, K. D., Fitness, J., & Newton, N. C. (2008). When hurt won't heal: Exploring the capacity to relive social pain. *Psychological Science*, 19, 789-795.
- Chiu, C., Hong, Y., & Dweck, C. S. (1997). Lay disposition and implicit theories of personality. *Journal of Personality and Social Psychology*, 73, 19-30.
- Derfler-Rozin, R., Pillutla, M., & Thau, S. (2010). Social reconnection revisited: The effects of social exclusion risk on reciprocity, trust, and general risk-taking. *Organizational Behavior and Human Decision Processes*, 112, 140-150.
- DeWall, C. N., Baumeister, R. F., & Vohs, K. D. (2008). Satiated with belongingness? effects of acceptance, rejection, and task framing on self-regulatory performance. *Journal of Personality and Social Psychology*, 95, 1367-1382.
- Downey, G., & Feldman, S. I. (1996). Implications of rejection sensitivity for intimate relationships. *Journal of Personality and Social Psychology*, 70, 1327-1343
- Eisenberger, N. I., Lieberman, M. D., & Williams, K. D. (2003). Does rejection hurt? An fMRI study of social exclusion. *Science*, 302, 290-292.
- Fiske, S. T., Cuddy, A. J. C., & Glick, P. (2007). Universal dimensions of social cognition: Warmth and competence. *Trends in Cognitive Sciences*, 11, 77-83.

- Friend, R. M., & Gilbert, J. (1973). Threat and fear of negative evaluation as determinants of locus of social comparison. *Journal of Personality, 41*, 328-340.
- Gleason, M. E. J., Iida, M., Bolger, N., & Shrouf, P. E. (2003). Daily supportive equity in close relationships. *Personality and Social Psychology Bulletin, 29*, 1036-1045.
- Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review, 25*, 161-179.
- Jung, J. (1990). The role of reciprocity in social support. *Basic and Applied Social Psychology, 11*, 243-253.
- Kerr, N. L., & Levine, J. M. (2008). The detection of social exclusion: Evolution and beyond. *Group Dynamics: Theory, Research, and Practice, 12*, 39-52.
- Kross, E., Berman, M., Mischel, W., Smith, E.E., & Wager, T. (2011). Social rejection shares somatosensory representations with physical pain. *Proceedings of the National Academy of Sciences, 108*, 6270-6275.
- Kurzban, R., & Leary, M. R. (2001). Evolutionary origins of stigmatization: The functions of social exclusion. *Psychological Bulletin, 127*, 187-208.
- Leary, M. R. (1983). A brief version of the fear of negative evaluation scale. *Personality and Social Psychology Bulletin, 9*, 371-375.
- Leary, M. R., Kelly, K. M., Cottrell, C. A., & Schreindorfer, L. S. (in press). Construct validity of the need to belong scale: Mapping the nomological network. *Journal of Personality Assessment*.
- 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*, 518-530.
- Lee, E. A., Soto, J. A., Swim, J. K., & Bernstein, M. J. (2012). Bitter reproach or sweet revenge: Cultural differences in response to racism. *Personality and Social Psychology Bulletin, 38*, 121-131.

- Psychology Bulletin*, 38, 920-932.
- Levine, J. M., & Kerr, N. L. (2007). Inclusion and exclusion: Implications for group processes. In A. E. Kruglanski and E. T. Higgins (Eds.), *Social psychology: Handbook of basic principles* (2nd ed.). New York: Guilford.
- MacDonald, G., & Leary, M. R. (2005). Why Does Social Exclusion Hurt? The Relationship Between Social and Physical Pain. *Psychological Bulletin*, 131, 202-223.
- Melzack, R. (1987). The short-form McGill pain questionnaire. *Pain*, 30, 191-197.
- Muller, D., Judd, C. M., & Yzerbyt, V. Y. (2005). When moderation is mediated and mediation is moderated. *Journal of Personality and Social Psychology*, 89, 852-863.
- Poon, K. T., Chen, Z., & DeWall, C. N. (2013). Feeling entitled to more: Ostracism increases dishonest behavior. *Personality and Social Psychology Bulletin*, 39, 1227-1239.
- Poulsen, J. R., & Kashy, D. A. (2012). Two sides of the ostracism coin: How sources and targets of social exclusion perceive themselves and one another. *Group Processes & Intergroup Relations*, 15, 457-470.
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, 36, 717-731.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavioral Research Methods*, 40, 1095-1107.
- Richeson, J. A., & Trawalter, S. (2005). Why do interracial interactions impair executive function? A resource depletion account. *Journal of Personality and Social Psychology*, 88, 934-947.
- Rook, K. S. (1987). Reciprocity of social exchange and social satisfaction among older women. *Journal of Personality and Social Psychology*, 52, 145-154.

- Sasaki, S. J., & Vorauer, J. D. (2010). Contagious resource depletion and anxiety? Spreading effects of evaluative concern and impression formation in dyadic social interaction. *Journal of Experimental Social Psychology, 46*, 1011-1016.
- Smith, R. E., & Sarason, I. G. (1975). Social anxiety and the evaluation of negative interpersonal feedback. *Journal of Consulting and Clinical Psychology, 43*, 429-429.
- Sommer, K. L., Williams, K. D., Ciarocco, N. J., & Baumeister, R. F. (2001). When silence speaks louder than words: Explorations into the intrapsychic and interpersonal consequences of social ostracism. *Basic and Applied Social Psychology, 23*, 225-243.
- 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*, 1058-1069.
- Vorauer, J. D. (2006). An information search model of evaluative concerns in intergroup interaction. *Psychological Review, 113*, 862-886.
- Vorauer, J. D., & Sakamoto, Y. (2006). I thought we could be friends, but....systematic miscommunication and defensive distancing as obstacles to cross-group friendship formation. *Psychological Science, 17*, 326-331.
- Watson, D., & Friend, R. (1969). Measurement of social-evaluative anxiety. *Journal of Consulting and Clinical Psychology, 33*, 448-457.
- Wesselmann, E. D., Bagg, D., & Williams, K. D. (2009). "I feel your pain": The effects of observing ostracism on the ostracism detection system. *Journal of Experimental Social Psychology, 45*, 1308-1311.
- Wesselmann, E. D., Cardoso, F. D., Slater, S., & Williams, K. D. (2012). To be looked at as though air: Civil attention matters. *Psychological Science, 23*, 166-168.
- Wesselmann, E. D., Wirth, J. H., Pryor, J. B., Reeder, G. D., & Williams, K. D. (2013). Why do we ostracize? *Social and Psychological and Personality Science, 4*, 108-115..

- Williams, K. D. (2007). Ostracism. *Annual Review of Psychology*, *58*, 425-452.
- Williams, K. D. (2009). Ostracism: A temporal need-threat model. In M. Zanna (Ed.), *Advances in Experimental Social Psychology* (Vol. 41, pp. 279-314). NY: Academic Press.
- Williams, K. D., Bernieri, F., Faulkner, S., Grahe, J., & Gada-Jain, N. (2000). The Scarlet Letter Study: Five days of social ostracism. *Journal of Personal and Interpersonal Loss*, *5*, 19-63.
- Williams, K. D., Cheung, C. K. T., & Choi, W. (2000). Cyberostracism: Effects of being ignored over the internet. *Journal of Personality and Social Psychology*, *79*, 748-762.
- Williams, K. D., Shore, W. J., & Grahe, J. E. (1998). The silent treatment: Perceptions of its behaviors and associated feelings. *Group Processes & Intergroup Relations*, *1*, 117-141.
- Williams, K. D., & Sommer, K. L. (1997). Social ostracism by coworkers: Does rejection lead to loafing or compensation? *Personality and Social Psychology Bulletin*, *23*, 693-706.
- Wirth, J. H., Sacco, D. F., Hugenberg, K., & Williams, K. D. (2010). Eye gaze as relational evaluation: Averted eye gaze leads to feelings of ostracism and relational devaluation. *Personality and Social Psychology Bulletin*, *36*, 869-882.
- Zell, E., & Bernstein, M. J. (2013). You may think you're right... Young adults are more liberal than they realize. *Social Psychological and Personality Science*.
- Zhou, X., Zheng, L., Zhou, L., & Guo, N. (2009). The act of rejecting reduces the desire to reconnect: Evidence for a cognitive dissonance account. *Journal of Experimental Social Psychology*, *45*, 44-50

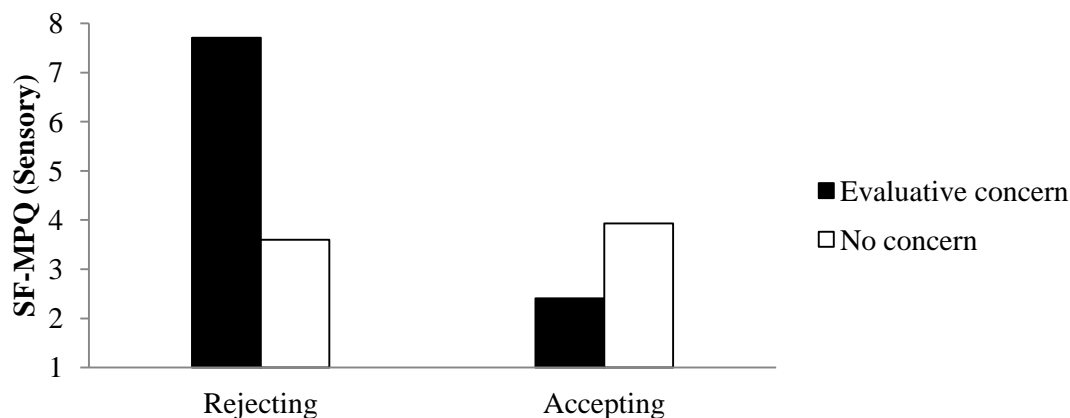
Figure Caption

Figure 1 (a) Sensory (b) affective and (c) overall pain experience as a function of rejecting/accepting condition and evaluative concern (Experiment 2).

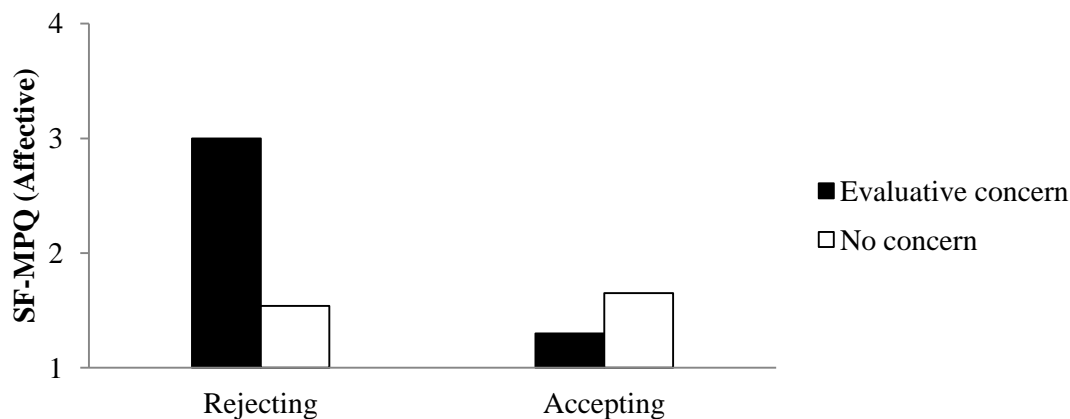
Figure 2. (a) Perceived rejection likelihood and (b) pain experience as a function of rejecting condition and evaluative concern (Experiment 3).

Figure 3. Perceived future rejection mediates the interactive effect of fear of negative evaluation and rejecting on pain experience (Experiment 3).

a, Sensory pain experience



b, Affective pain experience



c, Overall pain experience

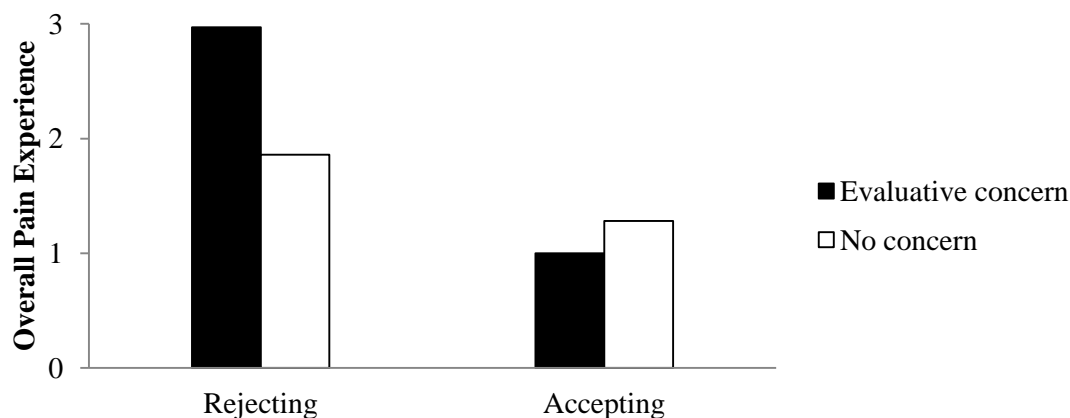
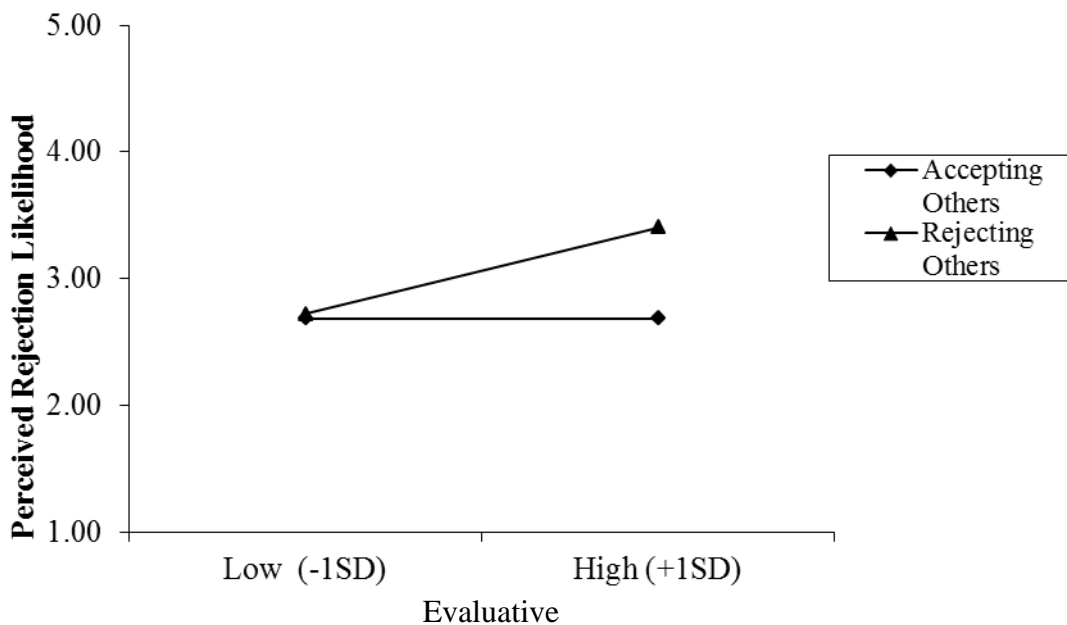


Figure 1 (a) Sensory (b) affective and (c) overall pain experience as a function of rejecting/accepting condition and evaluative concern (Experiment 2).

(a) Perceived Future Rejection



(b) Painful Feelings

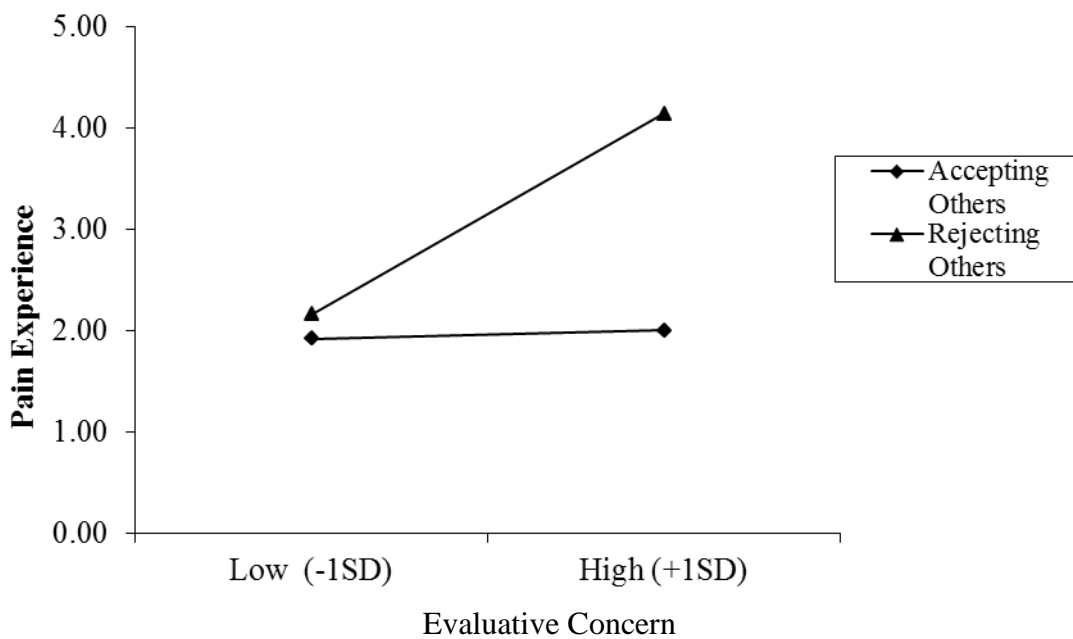


Figure 2. (a) Perceived rejection likelihood and (b) pain experience as a function of rejecting condition and evaluative concern (Experiment 3).

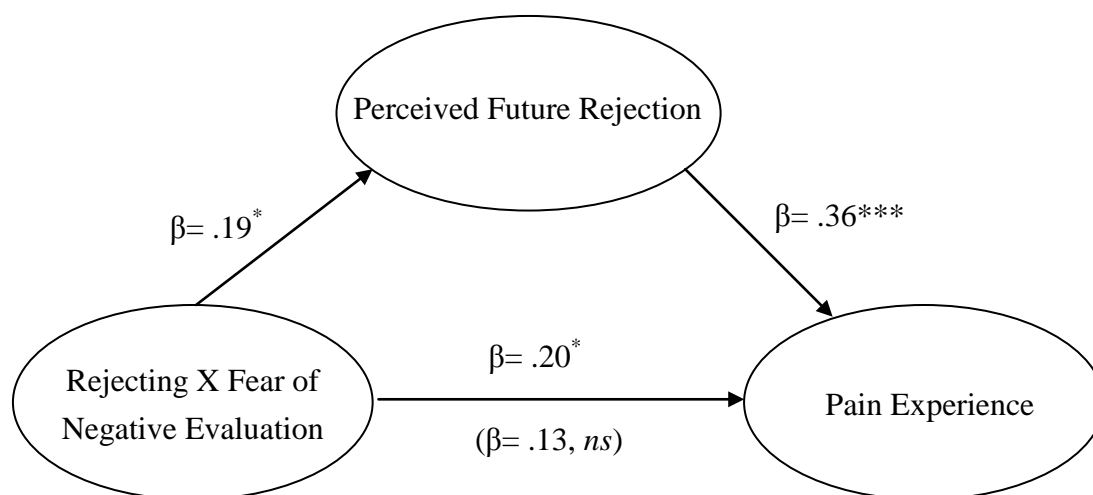


Figure 3. Perceived future rejection mediates the interactive effect of fear of negative evaluation and rejecting on pain experience (Experiment 3)

*** $p < .001$; ** $p < .01$; * $p < .05$