


A Grateful Heart is a Nonviolent Heart: Cross-Sectional, Experience Sampling, Longitudinal, and Experimental Evidence

Social Psychological and
Personality Science
000(00) 1-9
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DOI: 10.1177/1948550611416675
http://spps.sagepub.com


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Abstract

Five studies tested the hypothesis that gratitude is linked to lower levels of aggression. Although gratitude increases mental well-being, it is not known whether gratitude mitigates against aggression. Gratitude motivates people to express sensitivity and concern for others and stimulates prosocial behavior. Aggression, defined as intentionally harming another person who is motivated to avoid the harm, runs counter to the motivation to increase others' welfare and should be reduced among grateful people. Cross-sectional, longitudinal, experience sampling, and experimental designs yielded converging evidence to show that gratitude is linked to lower aggression. Higher empathy mediated the relationship between gratitude and lower aggression. These findings have widespread applications for understanding the role of emotion on aggression and can inform interventions aimed at reducing interpersonal aggression.

Keywords

aggression, violence, emotion, interpersonal relationships, interpersonal processes

To speak gratitude is courteous and pleasant, to enact gratitude is generous and noble, but to live gratitude is to touch Heaven.

—Johannes A. Gaertner

Social life requires a balance between aggressive and prosocial motivations in interpersonal interactions. To understand why the balance teeters toward aggressive and not prosocial behavior, researchers have focused primarily on negative emotions that increase aggression (Bushman & Huesmann, 2010; DeWall, Anderson, & Bushman, 2011). Yet, it may prove fruitful to identify emotions that reduce aggression. Positive emotions that have a built-in sense of generosity and empathy may make people less aggressive. The current research seeks to demonstrate that gratitude, a positive emotion associated with greater generosity and empathy, can cause lower aggression. Most prior research paints the portrait of grateful people as nice people. Our studies extend these notions to suggest that grateful people are not merely nicer than others, but also that they are less aggressive.

What is Gratitude?

People experience gratitude when they receive another person's intentional, costly, and voluntary positive action toward them (McCullough, Kimeldorf, & Cohen, 2008; Roberts, 2004). Gratitude feels good, but it is not simply another form

of happiness. Indeed, prior work shows consistently that gratitude is not reducible to general positive affect (Algoe & Haidt, 2009; Kashdan, Mishra, Breen, & Froh, 2009; McCullough, Emmons, & Tsang, 2002; McCullough, Kilpatrick, Emmons, & Larson, 2001).

Gratitude has two main forms. The first is gratitude as an affective trait, which refers to a chronic tendency toward experiencing gratitude coupled with a diminished threshold for experiencing gratitude (McCullough et al., 2002; Rosenberg, 1998). Lay notions of "grateful people" refer to people high in gratitude as an affective trait. The second is gratitude as a mood. Whereas gratitude as an affective trait refers to a chronic pattern, gratitude as a mood describes the tendency to experience fluctuations in felt gratitude within and across days (McCullough, Tsang, & Emmons, 2004). We focus on these two forms of gratitude because they are best understood in the

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literature. Gratitude as an affective trait and gratitude as a mood are positively associated to each other and are linked to many similar outcomes, including higher empathy (McCullough et al., 2002, 2004). Hence, we expected to find similar negative associations between gratitude and aggression regardless of whether gratitude was measured as an affective trait or a mood.

Why Should Gratitude Relate to Lower Aggression?

In an influential analysis of gratitude, McCullough and colleagues (2001) suggest that gratitude is a moral emotion because it functions as a (a) moral barometer (i.e., increasing awareness that one is the beneficiary of another person's moral actions), (b) moral motive (i.e., prompting one to behave in a prosocial manner toward the benefactor and other people), and (c) moral reinforcer (i.e., with the expression of gratitude improving the probability of additional moral behavior from the benefactor). As supportive evidence for these moral functions, gratitude has been linked to attributing positive outcomes to the actions of others (Algoe & Haidt, 2009; Kashdan et al., 2009; McCullough et al., 2001; McCullough et al., 2002), behaving in a prosocial manner toward others even when doing so is costly to the self (Algoe & Haidt, 2009; Bartlett & Desteno, 2006), and perceiving close relationships as high in quality and worthy of further investment or commitment (e.g., Algoe, Haidt, & Gable, 2008; Lambert, Clark, Durtschi, Fincham, & Graham, 2010).

We suggest that individuals who are more inclined to perceive themselves as the beneficiaries of others' actions (moral barometer) and who subsequently behave more prosocially toward these individuals (moral motive) will be less inclined to find reasons to become angry and aggressive. When experiencing gratitude, a person is sensitive to the emotions, thoughts, and actions that underlie the positive contributions of others (moral barometer)—which reflects a shift away from self-interests to mirroring and understanding another person. The desire to reciprocate these positive contributions (moral motive) is antithetical to the desire to aggress against or harm another person. One mechanism that might mediate the relationship between gratitude and lower aggression is empathy, to which we turn next.

How Might Empathy Explain Why Gratitude is Linked to Lower Aggression?

Theoretical and empirical work suggests that gratitude is an "empathic emotion" (Lazarus & Lazarus, 1994) that motivates people to express sensitivity and concern toward others and to behave prosocially toward either the benefactor or uninvolved third parties (McCullough et al., 2001, 2002, 2008). Indeed, prior work has shown that gratitude (as an affective trait and a mood) relates to higher levels of empathic concern for others (McCullough et al., 2002, 2004). Empathy is among the best understood emotions that promote prosocial and diminish

aggressive behavior. Therefore, gratitude's relationship to lower aggression may be mediated, in part, by heightened empathy.

Within the prosocial behavior literature, the empathy–altruism hypothesis is the most prominent perspective on the role of empathy on prosocial behavior (Batson, 1991). Across dozens of experiments, empathic people tend to behave more prosocially compared to their nonempathic counterparts (see Batson, 1998). To be sure, some research has argued that the evidence linking empathy to prosocial behavior is anything but iron clad (e.g., Cialdini, Brown, Lewis, Luce, & Neuberg, 1997; Maner et al., 2007). Still, a large corpus of work points in the direction of empathy increasing, rather than decreasing, behavior toward others that is caring, self-sacrificing, and generally positive.

Empathic people are not only nice, they are also not very aggressive. To understand the impact of empathy on aggression, researchers take two strategies. The first strategy involves identifying people who seem unable to experience strong empathy and measuring their aggression. According to this perspective, being able to see things from another person's viewpoint and being able to care for another person's welfare should inhibit aggression. When people lack these abilities, they should be more likely to behave aggressively. This is precisely the case. People who chronically experience low levels of empathy are extremely aggressive (Frick et al., 2003; Hare, Hart, & Harpur, 1991). Indeed, being callous and unemotional to others' distress is a core feature of psychopathy (Hare, 2003; Lilienfeld & Widows, 2005).

The second strategy involves examining whether empathic people behave aggressively when they are exposed to conditions that normally increase aggression. In one illustrative experiment, people imbibed alcoholic or faux-alcoholic beverages and then were given the opportunity to shock an opponent with electricity (Giancola, 2003). Not surprisingly, alcohol increased aggression—but this relationship was nonexistent among highly empathic people. Hence, empathy can buffer people from situations that normally increase aggression, such as alcohol intoxication. These two research strategies converge on a similar conclusion: empathy promotes prosocial behavior and inhibits aggressive behavior.

Because experiencing gratitude activates feelings of empathy, one reason why gratitude relates to lower aggression is due to heightened empathy associated with gratitude. Aggression runs counter to the motivation to increase others' welfare and therefore should be reduced among grateful people. Thus, the current work provides the first empirical evidence regarding the role of gratitude in reducing aggression, which may be mediated by higher levels of empathy.

Study 1: Grateful Moods Relate to Lower Daily Aggression

Study 1 sought to demonstrate that daily grateful moods relate to lower aggression. Participants reported their daily feelings of gratitude, positive affect, and general aggression. We predicted that daily feelings of gratitude would correlate negatively with daily aggression, even after controlling for daily positive emotion.

Method

Participants

A total of 200 undergraduates (76% women) participated in this study for partial course credit.

Measures

Daily gratitude. Participants completed a 1-item measure that assessed how much gratitude they felt that day (1 = *Little or no gratitude* to 5 = *Overwhelming gratitude*).

Daily aggression. Participants completed an abbreviated form of the physical aggression subscale of the Aggression Questionnaire (Buss & Perry, 1992; $\alpha = .82$). To create a composite measure of daily physical aggression, we included the two highest loading items measuring physical aggression (e.g., “Given enough provocation today, I might hit another person”).

Daily positive affect. Participants completed the positive affect subscale of the positive and negative affect schedule (Watson, Clark, & Tellegen, 1988; $\alpha = .94$), which assessed daily positive affect.

Procedure

Participants received an URL to record their feelings and behaviors 3 times each week for 25 days. The online survey included the measures of gratitude, aggression, and positive affect. Participants completed their daily surveys at the end of each day.

Results and Discussion

Our main prediction was that daily gratitude would relate to lower daily physical aggression, even after controlling for daily positive emotion. Because our diary data were nonindependent, we used multilevel modeling to account for this nonindependence.

As predicted, daily grateful moods correlated negatively with daily physical aggression, $B = -0.27$, $t(199) = -3.21$, $p = .002$. Controlling for positive emotion, daily gratitude continued to predict lower levels of daily physical aggression, $B = -0.26$, $t(199) = -2.95$, $p = .004$. Thus, daily grateful moods related to less daily physical aggression, which was independent of how much daily positive emotion participants experienced.

Study 2: When Hurt by Others During Daily Social Interactions, Grateful Moods are Linked With Less Aggression

Study 2 sought to extend findings by examining the link between gratitude and aggression within the context of actual social interactions as they unfolded in people’s natural daily environment over 2 weeks. Whereas Study 1 examined the link between daily gratitude and aggressive tendencies, Study 2

examined aggression in response to provocation. Provocation is “perhaps the most important single cause of aggression” (Anderson & Bushman, 2002, p. 37), making it desirable to examine how gratitude influences aggression within social interactions in which people experience provocation.

Participants recorded all face-to-face social interactions for 14 days. For each interaction, participants reported their feelings of gratitude and happiness and whether their feelings were hurt. If their feelings were hurt, participants reported how much they expressed their anger toward the perpetrator. We had three predictions. First, feeling more gratitude during a conversation would relate to a lower probability of being hurt, presumably because gratitude frequently occurs in response to benevolent actions from others. Second, people who felt more grateful would behave less aggressively during interactions in which they felt hurt. Third, gratitude would predict lower hurt feelings and aggression after controlling for how happy participants felt during their interactions.

Participants

A total of 168 undergraduates (68.5% women) participated in this study. Of these participants, 111 participants reported an episode of hurt feelings during an interaction (79.4% women). This discrepancy between the total number of participants and the number of participants who experienced an episode of hurt feelings is reflected in different degrees of freedom in the results section. Participants reported a total of 938 face-to-face interactions ($M = 8.53$, $SD = 8.00$).

Measures

Participants rated how grateful and happy they felt during their interactions (1 = *not at all* to 9 = *very*). For interactions in which participants reported hurt feelings, they rated how much they outwardly expressed their anger (1 = *little* to 9 = *a lot*).

Procedure

Participants received an URL to record all face-to-face social interactions lasting at least 10 min. Participants were instructed to record interactions on the day of their occurrence (before they went to sleep). They were also encouraged to make recordings at least twice per day over the course of the 2-week study.

Results and Discussion

We predicted that gratitude would relate to fewer hurt feeling episodes, and less aggressive reactions when hurt or insulted, even after controlling for positive emotion. To account for the nonindependence in our data, we again used multilevel modeling.

As expected, gratitude felt during interactions was negatively related to the percentage of interactions where feelings were hurt, with a log odds coefficient of $B = -0.43$, $t(164) = -9.03$, $p < .001$. When participants’ feelings were hurt,

being grateful related to less outward expression of anger toward the perpetrator, $B = -0.54$, $t(106) = -5.62$, $p < .001$. Controlling for happiness felt during interactions, gratitude felt during interactions remained negatively related to the percentage of interactions where feelings were hurt ($B = -0.15$, $p < .001$) and how much people expressed anger outwardly toward the person inflicting hurt ($B = -0.32$, $p = .02$).

Study 2 offers additional evidence in daily life regarding the relationship between grateful moods and less hurt feelings and aggressive reactions to perpetrators. When people experience more grateful moods, they are less susceptible to having their feelings hurt, and when their feelings are hurt, to react aggressively to the perpetrator/ perpetrators. Like Study 1, these effects were unique to gratitude, remaining significant after controlling for happiness. But these studies lack a crucial element—they are mute as to whether gratitude causes people to behave less aggressively. Study 3 addresses this limitation by experimentally manipulating gratitude.

Study 3: Experimental Gratitude Manipulation Reduces Behavioral Aggression

Study 3 sought to provide causal evidence regarding the positive effect of gratitude on reducing aggression. Gratitude was manipulated by having participants write a letter about what they were most grateful for in life (vs. what they most liked to do), which has been used effectively in previous work to increase feelings of gratitude (Seligman, Steen, Park, & Peterson, 2005). Hence, all participants wrote about positive things in their lives, but only some participants wrote about gratitude. We also manipulated provocation by having some participants receive negative or insulting feedback on an essay they wrote. Aggression was measured by having participants complete a competitive task in which they could administer intense and prolonged blasts of noise to an opponent. We predicted that gratitude would buffer people from the negative consequences of provocation on aggression.

Method

Participants

A total of 158 undergraduates (67% women) participated in this study.

Procedure

Participants first wrote a short essay about a time when they were angry, which they were told a same-gender partner would evaluate later. After writing their essay, the experimenter told participants that they would write a brief letter to someone with whom they were close.

By random assignment, half of the participants wrote a letter about five things in their lives for which that they were most grateful. The other half of the participants wrote a letter about five things in their lives that they like to do. This control condition sought to demonstrate that writing about gratitude, rather

than merely writing about positive things in life, would suppress aggression in response to provocation.

Next, the experimenter returned to the room to deliver the provocation manipulation. The experimenter handed participants the essay evaluation sheet ostensibly from a same-gender partner, which contained either insulting feedback (e.g., “This is one of the worst essays I’ve ever read”) or positive feedback (e.g., “Excellent essay! No comments”; Bushman & Baumeister, 1998).

After receiving the feedback, the participants began the behavioral aggression task. Participants competed against the person who evaluated their essay to see who could respond more quickly, with the winner delivering a blast of white noise to the loser. On each trial, participants chose the intensity (0–105 dB) and duration (0–2.5 sec) of the noise. The intensity and duration of noise that participants set for their partner on the very first trial were standardized and summed to create a composite aggression measure (e.g., Anderson & Anderson, 2008; Bushman & Baumeister, 1998).¹

Results and Discussion

Validation of Gratitude Manipulation

To ensure that the gratitude manipulation had the intended effect, two independent and trained coders (who were blind to the study hypothesis) rated the letters for how much gratitude the author expressed (1 = *Not at all* to 7 = *Very much*). The coders also rated how much each letter’s author expressed positive emotion (1 = *Not at all* to 7 = *Very much*), which enabled us to determine whether both the gratitude and the control conditions motivated participants to write about equivalently positive emotional events. Inter-rater reliability was adequate for the gratitude (intraclass correlation: .87) and positive emotion (intraclass correlation: .64) ratings. Therefore, responses were collapsed across coders.

As predicted, participants in the gratitude condition ($M = 5.81$, $SD = 0.61$) expressed substantially more gratitude in their letters than did participants in the control condition, $M = 3.67$, $SD = 1.08$, $t(155) = 15.15$, $p < .001$. In contrast, the gratitude ($M = 4.70$, $SD = 1.10$) and the control ($M = 4.75$, $SD = 0.98$) conditions did not differ in the amount of positive emotion expressed, $t < 1$, not significant (ns). Thus, the manipulation had the intended effect of increasing gratitude but not causing greater expression of positive emotion between the two conditions.

Aggression

We predicted that gratitude would reduce behavioral aggression among participants who were insulted. As expected, we found a significant gratitude \times provocation interaction, $F(1,154) = 5.26$, $p = .02$ (see Figure 1).

Provocation increased aggression among participants in the control condition, $F(1,154) = 9.48$, $p = .002$, but it did not increase aggression among grateful participants, $F < 1$. Among insulted participants, grateful participants behaved less

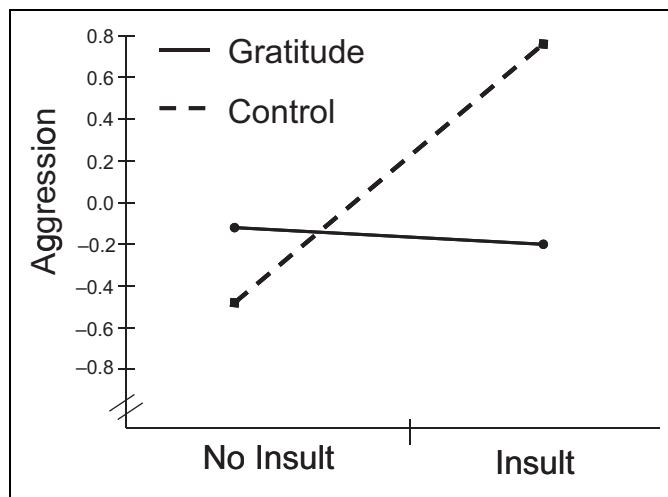


Figure 1. Interactive effect of an experimental gratitude manipulation on reducing physical aggression following interpersonal provocation (Study 3).

aggressively than did control participants, $F(1,154) = 5.22$, $p = .02$. In contrast, among participants who experienced praise, gratitude had no effect on aggression, $F < 1$.

The results from Study 3 offer the first causal evidence regarding the relationship between gratitude and lower aggression. An experimental manipulation of gratitude caused participants to behave less aggressively compared to participants who wrote a letter about positive things in their life but were not made to feel grateful. These effects were specific to when an aggressive impulse had been stimulated through interpersonal provocation. Thus, these findings provide converging support for the hypothesis that gratitude reduces aggression, especially in response to provocation.

Study 4: Empathy Mediates the Link Between Gratitude and Lower Aggression

Studies 1–3 offered converging support for the hypothesis that gratitude is linked to lower levels of aggression. Study 4 sought to identify a mechanism underlying the relationship between gratitude and lower aggression. We propose that grateful people are less aggressive in part because of their higher empathy for others (Lazarus & Lazarus, 1994; McCullough et al., 2002, 2004). Participants completed measures of gratitude as an affective trait, aggression, positive affect (included as a covariate), and empathy for others. We predicted that gratitude would relate to higher empathy and lower aggression, controlling for positive affect. We also expected that greater empathy would mediate the relationship between gratitude and lower aggression.

Method

Participants

A total of 175 undergraduates (84% women) participated in this study in exchange for extra credit.

Materials

Gratitude. As in Study 2, participants completed the measure of gratitude as an affective trait (McCullough et al., 2002; $\alpha = .76$).

Aggressive personality. Participants completed the physical aggression subscale of the Aggression Questionnaire (Buss & Perry, 1992; $\alpha = .82$). Example items include “Once in a while I can’t control the urge to strike another person,” and “Given enough provocation, I may hit another person.”

Empathic concern for others. Participants completed the primary factor of the Self-Report Psychopathy scale ([SRPS] Levenson et al., 1996; $\alpha = .83$), which is used to measure how much empathic concern people generally feel toward others (e.g., “I make a point of trying not to hurt others in pursuit of my goals”). To facilitate interpretation, responses were scored such that higher levels reflect greater empathic concern.

Positive affect. Participants completed the positive affect subscale of the PANAS (Watson et al., 1988; $\alpha = .89$), which assessed how much positive affect participants experience generally.

Procedure

Participants completed all aspects of the study over the Internet. After giving informed consent, participants completed the gratitude, PANAS, aggression, and empathy measures.

Results and Discussion

As expected, gratitude related to lower levels of physical aggression after controlling for positive affect, $\beta = -0.20$, $p = .01$.

Next, we tested whether empathy mediated the link between gratitude and lower levels of aggression (controlling for positive affect). Gratitude related to higher empathy for others, $\beta = 0.26$, $p = .001$. After controlling for gratitude, empathy related to lower aggression, $\beta = -0.35$, $p < .001$. Mediation analyses (using 1,000 bootstrap samples; Preacher & Hayes, 2008) showed that higher empathy had a significant indirect effect on the relationship between gratitude and lower aggression (95% CI: $-0.29, -0.06$; Figure 2). Thus, grateful people are less aggressive in part because they have high empathy for others.

To determine the reliability of empathy as a mediator of aggression, and whether it mediated aggression longitudinally, we conducted a final study. In Study 5, we examined whether empathy mediated the relationship between gratitude and physical aggression over time.

Study 5: Longitudinal Evidence That Empathy Mediates the Link Between Gratitude and Lower Aggression

We conducted Study 5 to further verify that higher levels of empathy mediate the relationship between gratitude and lower

AQ2

AQ3

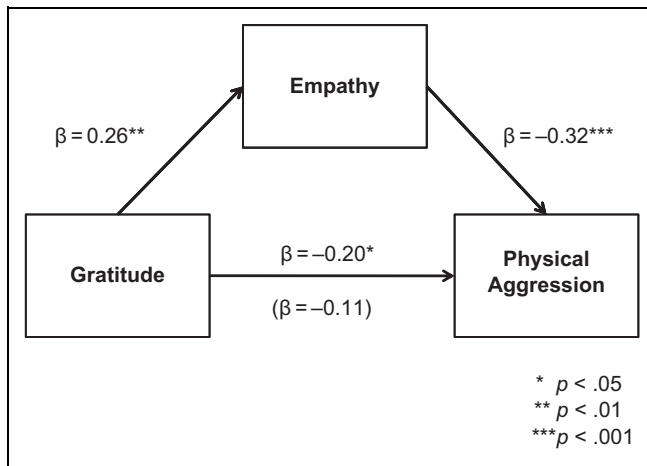


Figure 2. Empathy mediates the relationship between gratitude and lower physical aggression (Study 4).

aggression over time. Study 5 also used a widely used and validated empathy measure instead of using the primary factor of the SRPS as our empathy measure. We predicted that initial levels of gratitude would predict lower levels of physical aggression over time, which would be mediated by higher levels of empathy. We also tested two alternative models. First, we examined whether lower physical aggression preceded gratitude. Second, we investigated whether higher empathy predicts higher gratitude, which in turn predicts lower physical aggression.

Participants

A total of 202 undergraduates (77% women) participated in this study.

Measures

Gratitude. As in Studies 2 and 4, participants completed the measure of gratitude as an affective trait (McCullough et al., 2002; Time 1 $\alpha = .79$, Time 2 $\alpha = .78$).

Aggressive personality. Participants completed the physical aggression subscale of the Aggression Questionnaire (Buss & Perry, 1992; Time 1 $\alpha = .86$, Time 2 $\alpha = .85$). An example item is “Once in a while I can’t control the urge to strike another person.”

Empathy for others. Participants completed the empathic concern subscale of the Interpersonal Reactivity Index (IRI), which is a widely used and valid measure of empathic concern (Davis & Oathout, 1987; Time 2 $\alpha = .76$) that relates to gratitude (McCullough et al., 2002, 2004). Responses were scored such that higher levels reflected greater empathic concern for others.

Positive affect. Participants completed the positive subscale of the PANAS (Watson et al., 1988; Time 1 $\alpha = .92$, Time 2 $\alpha = .94$), which assessed how much positive affect participants experience generally.

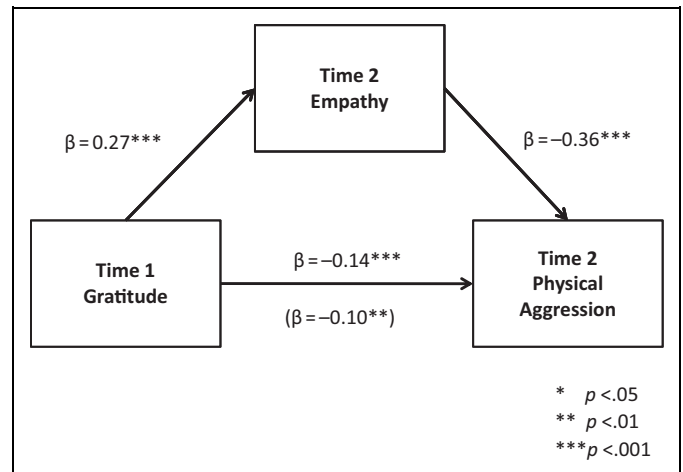


Figure 3. Longitudinal evidence that empathy mediates the relationship between gratitude and lower physical aggression (Study 5).

Procedure

Participants completed all aspects of the study over the Internet. After giving informed consent, participants completed the gratitude, PANAS, aggression, and empathy measures initially. Three weeks later, they completed the same measures again.

Results and Discussion

Primary Analyses

As expected, Time 1 gratitude related to lower levels of physical aggression at Time 2 ($\beta = -.14$, $p < .001$), even after controlling for Time 1 physical aggression, and positive affect at Time 1 and Time 2.

Next, we attempted to longitudinally replicate our mediational results from Study 5 by showing that empathy mediated the link between Time 1 gratitude and lower levels of physical aggression at Time 2 (controlling for Time 1 and Time 2 positive affect). Time 1 gratitude related to higher time 2 empathy for others, $\beta = 0.27$, $p < .001$. Also, even after controlling for Time 1 gratitude, and Time 1 and Time 2 positive affect, Time 2 empathy related to lower Time 2 physical aggression ($\beta = -0.36$, $p < .001$). Mediation analyses (using 1,000 bootstrap samples; Preacher & Hayes, 2008) showed that higher Time 2 empathy had a significant indirect effect on the relationship between Time 1 gratitude and Time 2 physical aggression (95% CI -0.12 , -0.02), controlling for Time 1 physical aggression, Time 1 and Time 2 positive affect, and Time 2 gratitude (see Figure 3). Thus, initial levels of gratitude predicted lower levels of physical aggression over time, which was accounted for by higher levels of empathy for others.

Testing Alternative Models

We sought to test alternative models to demonstrate that the direction of effect flows from gratitude to aggression through empathy. First, we tested whether Time 1 physical aggression would predict Time 2 gratitude. It did not. As expected, Time

1 physical aggression was not a significant predictor of Time 2 gratitude ($\beta = -0.08, p = .16$), after controlling for Time 1 gratitude and Time 1 and Time 2 positive affect.

Next, we examined whether Time 2 gratitude mediated the relationship between Time 1 empathy and Time 2 physical aggression (rather than Time 2 empathy mediating the relationship between Time 1 gratitude and Time 2 physical aggression). As predicted, mediational analyses (using 1,000 bootstrap samples; Preacher & Hayes, 2008) showed that higher Time 2 gratitude did not have a significant indirect effect on the relationship between Time 1 empathy and Time 2 physical aggression (95% CI $-0.04, 0.14$), controlling for Time 1 physical aggression, Time 1 and Time 2 positive affect, and Time 2 empathy. Thus, gratitude did not mediate the relationship between empathy and aggression, providing additional evidence in favor of the direction of our hypothesized model.

General Discussion

These findings provide converging support for the hypothesis that gratitude is an antidote to aggression. Gratitude motivates people to express sensitivity and concern toward others and to behave compassionately toward benefactors or uninvolved third parties. Aggression runs counter to the motivation to show empathic concern and compassion toward others. Therefore, gratitude, whether measured as an affective trait or a mood, should relate to (a) lower aggression on a daily basis, (b) less hurt feelings in daily interactions, (c) lower aggression when feeling hurt or insulted, and (d) a less aggressive personality. Because empathy is closely related to grateful people's motivation to think of others and improve others' welfare, the relationship between gratitude and lower aggression should be mediated by heightened empathy. Five studies, which used a variety of methods and measures, offered converging support for these hypotheses. These data, which are consistent with prevailing theories of gratitude, provide the first evidence that gratitude is linked to lower levels of aggression. Grateful people are not simply nicer than others, they are also less aggressive.

The findings have implications for theories of emotion and aggression. By taking into account how various emotions serve unique interpersonal functions, clearer predictions regarding the behavioral consequences of those emotions can be made. Our findings showed that gratitude reduced aggression even after controlling for positive emotion (Studies 1, 4, and 5), happiness (Study 2), and in comparison to a positive control condition (Study 3). These findings add to a recent chorus of scholars championing the importance of considering the function of emotional states in addition to their valence (e.g., Griskevicius, Shiota, & Neufelt, 2010; Harmon-Jones et al., 2009; Kashdan et al., 2009). Thus, gratitude can be considered an emotion that is uniquely associated with lower levels of aggression.

Whereas dominant theories of aggression have focused primarily on emotional states that increase aggression (e.g., Anderson & Bushman, 2002; DeWall et al., 2011), our findings demonstrate the importance of considering emotional states that reduce aggression. Gratitude is a positive emotion that

has a built-in feature of enhanced generosity and sensitivity to others' concerns. Empathy is consistently related to lower aggression and higher prosocial behavior (Batson, 1991; Giancola, 2003). The current work showed that higher levels of empathy toward others consistently mediated the relationship between gratitude and lower aggression.

To be sure, there are probably several mechanisms underlying the relationship between gratitude and lower aggression. For example, grateful people, compared to their nongrateful counterparts, may perceive provocation as less threatening. This diminished hostile cognition may in turn reduce their aggression. Perceptions of hostility consistently mediate the relationship between provocation and aggression (Bushman & Baumeister, 1998; DeWall & Bushman, 2009; DeWall, Twenge, Gitter, & Baumeister, 2009). By attenuating these hostile cognitions, gratitude may reduce aggression in the wake of provocation. This possibility awaits future inquiry.

By establishing the benefits of gratitude on reducing aggression inside and outside the laboratory, the current findings can inform clinical interventions designed to prevent aggression between strangers and intimates. Interventions aimed at reducing aggression between strangers and intimate relationship partners are historically ineffective (Anderson & Bushman, 2002; Babcock, Green, & Robie, 2004). Future research should explore the positive consequences of gratitude inductions on reducing aggression and violence among people with a history of violence and among couples seeking help to reduce aggression within their relationship. This possibility awaits future inquiry.

More broadly, the current findings highlight the importance of considering human strengths that can foster individual, relational, and societal well-being (Seligman et al., 2005). In a world replete with arguments, hatred, and violence, this intriguing notion of gratitude as one of the underlying mechanisms of resilience to aggression and violence is worthy of further investigation. The emerging portrait of the grateful person is one who has days filled with low levels of aggression and hurt feelings, is loathe to behave aggressively toward close others or insulting strangers, and whose overall beneficence in the face of aggressive situations is due in part to being empathic to others. Our findings shed light on the power of cultivating a sense of gratitude in one's life as a means of promoting not only mental well-being but also as a way of increasing interpersonal and societal well-being by reducing aggression.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Notes

1. Results did not differ by gender in this and all other studies.
2. Results were unchanged when analyzing responses across all of the trials, responses after wins, and responses after losses.

AQ5

AQ4

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