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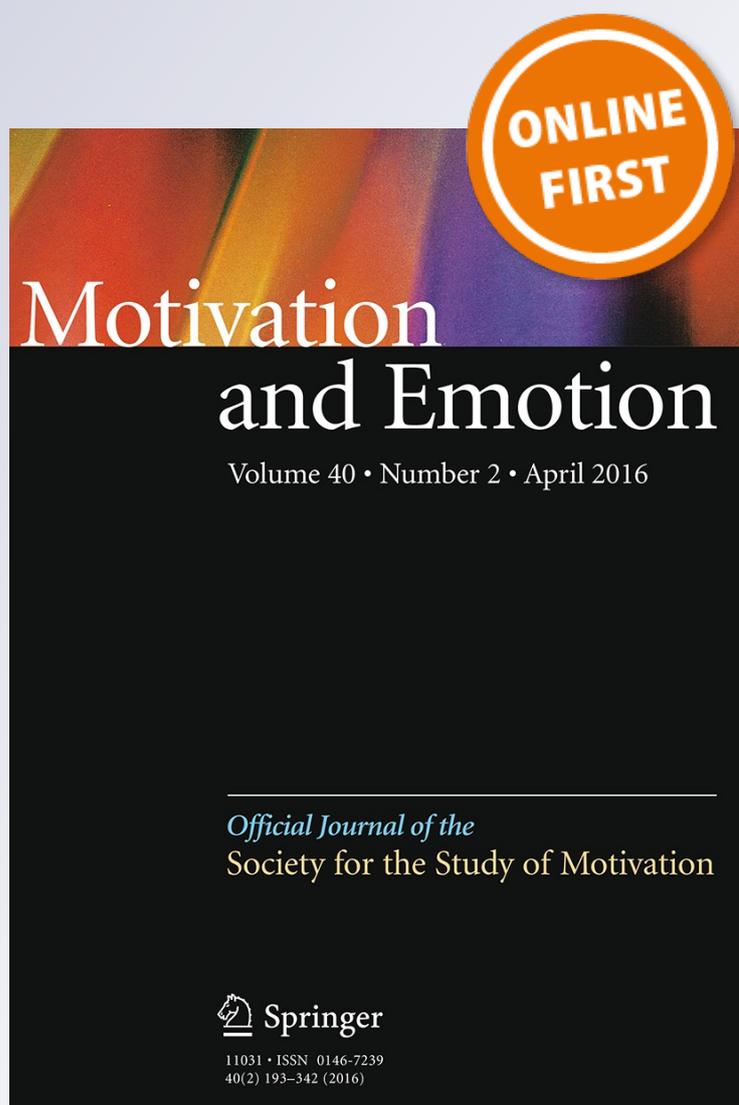
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Self-affirmation and affective forecasting: Affirmation reduces the anticipated impact of negative events

Janet V. T. Pauketat¹ · Wesley G. Moons² · Jacqueline M. Chen³ · Diane M. Mackie¹ · David K. Sherman¹

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Abstract When forecasting how they will feel in the future, people overestimate the impact that imagined negative events will have on their affective states, partly because they underestimate their own psychological resiliency. Because self-affirmation enhances resiliency, two studies examined whether self-affirmation prior to forecasting reduces the extremity of affective forecasts. Participants in self-affirmation conditions completed a values scale or wrote an essay asserting their most important value, whereas participants in the no-affirmation condition asserted a relatively unimportant value. Participants then predicted their affective reactions to a negative or positive imagined event. In both studies, self-affirmation reduced the unpleasant affect expected to result from a negative event, but had no impact on affective forecasts for a positive event. This pattern was mediated by participants' cognitive appraisals of the imagined event, but not by differential focus on that event. Results are consistent with self-affirmation activating or enhancing psychological resiliency to counteract immune neglect during affective forecasting of a negative event.

Keywords Affective forecasting · Self-affirmation · Immune neglect · Coping

Introduction

Asking the boss for a raise, bringing up relationship issues to one's spouse, and getting screened for cancer are all events that people expect to be unpleasant. In fact, people overestimate how negatively they will feel when anticipating such situations compared to how they actually feel when in those situations (Gilbert and Wilson 2007). The current research examines whether self-affirmation is a psychological intervention that can successfully reduce the biased extremity of negative affective forecasts by counteracting the immune neglect process through which affective forecasting can function.

The overestimation that occurs in affective forecasting about negative events is partly due to two kinds of underestimation. First, people underestimate the role of psychological coping processes (the psychological immune system) that typically kicks into help us cope with negative events. This failure to take psychological defenses and coping mechanisms into account has been termed *immune neglect* (Gilbert et al. 1998). We overestimate how upset we will be by a negative work evaluation, for example, because we do not realize that our psychological immune system will kick in and we will cope with the negative feedback from the boss, which will make us feel better. Because people are often unaware of these processes even when faced with an actual threat (Sherman et al. 2009b), it is not surprising that people do not factor in the possible benefits of these coping processes when imagining a threat. Thus, people expect to feel worse than they actually do when making affective forecasts. Importantly, this immune

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neglect explains the extremity and inaccuracy of affective forecasts only for negative events, because coping processes are less relevant to positive events (compared to capitalizing processes for positive events; Langston 1994; Gilbert et al. 1998).

Self-affirmation is part of the *psychological immune system* (Steele 1988; Gilbert et al. 1998) that people draw on in order to maintain a positive sense of self when they experience threats. Self-affirmation occurs when the self-concept is bolstered by reminders of alternative self-resources that can be used to cope with a threat (Sherman and Cohen 2006). Thus, the effects of negative evaluation can be buffered by, for example, reminding people of values they hold as important and giving people an opportunity to express themselves in a value-consistent manner (McQueen and Klein 2006). Importantly, self-affirmation is posited as distinct from general positive feeling about the self (Steele and Liu 1988; McQueen and Klein 2006). General positive mood and high self-esteem are other components of the psychological immune system suggesting its effective functioning (Wilson and Gilbert 2008). Thus, to detect self-affirmation effects in countering the immune neglect present in affective forecasts of negative events, both positive mood and self-esteem need to be ruled out as alternative explanations. Self-affirmation reduces psychological and biological responses to stressors, and can make cognitive appraisals of events less threatening and more manageable (Creswell et al. 2005; Sherman et al. 2009a; Sherman et al. 2000). Additionally, cognitive appraisals themselves initiate a coping process within emotional responding to manage stress and threats from negative events (Lazarus and Folkman 1987).

Responding affectively to events, negative or positive, is influenced by the attention paid to the event and the consequent reaction, explanation, and adaptation to the event (Wilson and Gilbert 2008). The Attention, Reaction, Explanation, and Adaptation (AREA) model of affective adaptation suggests that emotional responses occur when there is an attention-grabbing, self-relevant, and unexplained event. This emotional response weakens over time with comprehension of the event, which can occur through explanatory processes such as appraisals (Wilson and Gilbert 2008). With appraisals also functioning in the psychological immune system, self-affirmation may serve to weaken affective forecasts and enable affective adaptation to imagined events.

How might self-affirmation and cognitive appraisals influence immune neglect and affective forecasts of negative events? First, because self-affirmation activates coping processes, self-affirming prior to affective forecasting could undermine immune neglect by bringing online the cognitive appraisal coping processes (i.e. parts of the psychological immune system) that are typically activated

by actual threats. In other words, the coping resources activated by self-affirmation could induce forecasters to appraise potential or imagined negative events as less threatening, just as those resources help people appraise actual threats less negatively. Thus, appraisals are the means by which the coping responses inherent in self-affirmation act to influence affective reactions and affective forecasts.

Second, because self-affirmation activates the psychological immune system, increases resiliency, and decreases appraisals of threat when confronted with only a negative or threatening event (Steele 1988; McQueen and Klein 2006; Sherman and Hartson 2011), self-affirmation may also impact affective forecasting of only negative real or imagined events. That is, self-affirmation may impact immune neglect and thus reduce the extremity of forecasts for negative events, but not change forecasting of positive events. Because coping mechanisms are less relevant to positive events, any influence that self-affirmation has via coping mechanisms will temper forecasts of negative events, but will leave affective forecasts of positive events unchanged. We tested this hypothesis in two experiments.

Experiment 1

Participants in self-affirmation and no-affirmation conditions forecast their affective reactions to either a negative or positive event. The imagined events were the gain or loss of money—events that could reasonably occur to any of the participants. The primary test of our hypothesis rested on the affective forecasts made. If self-affirmation counteracted immune neglect, we expected affective forecasts of negative but not positive events to be more moderate when people self-affirmed compared to when they did not. To gain further insight into the operation of self-affirmation, we measured appraisals as an index of coping mechanisms influencing immune neglect. We also measured baseline affect, positive mood, and relative attention to the event as an index of focalism, another source of affective forecasting bias (Wilson et al. 2000), to investigate alternative explanations.

Method

Participants and design

Sixty-one students (20 men, 41 women) completed the study for partial course credit and were randomly assigned to a 2 (Self-affirmation or No-affirmation) \times 2 (Negative or Positive event) between-subjects design.

Procedure

Following Gilbert et al. (1998), we established baseline levels of affect by asking participants to report the extent to which they felt each of eight emotions “in general” using 9-point scales anchored by 1 (not at all) and 9 (very much). Participants’ reports of feeling happy, cheerful, glad, and satisfied and their reverse-scored reports of feeling sad, depressed, down, and glum were averaged into a single baseline affect index (Cronbach’s $\alpha = .93$) with higher scores indicating more positive affect.

Affirmation manipulation Following Sherman et al. (2000), Steele and Liu (1983) and Tesser and Cornell (1991) in a well-established affirmation manipulation, participants rank-ordered five values (aesthetic, political, religious, social, and theoretical) in order of personal importance. Participants then saw ten pairs of statements and were asked to assign four “agreement” points to one or the other of the statements. That is, they had 4 points to allot within each pair based on their agreement with one or the other statement. In the self-affirmation condition, one statement was always consistent with participants’ highest ranked value (allowing them to assert their value) and the other statement was irrelevant. Participants in the no-affirmation condition assigned points to either a statement that was consistent with their *lowest* ranked value or an irrelevant statement.

Affective forecasts Participants then imagined either the positive or negative event. In the negative event condition, participants were asked to imagine receiving an unexpected bill for \$300 from their school. In the positive event condition, participants were asked to imagine receiving an unexpected refund check for \$600 from their school.¹ Participants used 9-point scales anchored by 1 (not at all) and 9 (very much) to forecast how they would feel immediately after this imagined event. Participants’ forecasts of feeling happy, cheerful, glad, and satisfied and their reverse-scored forecasts of feeling sad, depressed, down, and glum were averaged into a single affective forecast index (Cronbach’s $\alpha = .97$) so higher scores indicated more positive affect.² This measurement allowed us to create a standard index of affective forecasting that is generalizable across events while allowing for control of baseline affect.

Appraisals Participants reported appraisals of the event by responding to “How disturbing is this event?” and “How relieving is this event?” using a 9-point scale

¹ Money was doubled for the positive event condition in Experiment 1 because negative events generally have more impact than positive events (Taylor 1991).

² Analyzing positive emotions separately revealed the same pattern as analysis of the composite index.

anchored by 1 (not at all) and 9 (very much). After the “disturbing” item was reverse-scored, the two items were averaged into a single appraisal index ($r = .51$) with higher scores indicating more positive appraisals of the event. Disturbing and relieving appraisals were assessed to tap coping with or explaining an unexpected event in student life that may either be disturbing and negative (losing \$300) or relieving and positive (gaining \$600).³

Focalism Relative focus on the central event was assessed with responses to four questions on 9-point scales anchored by 1 (not at all) and 9 (very much): “How much did you focus on the event itself when making your predictions?”, “How much did the event alone influence your predictions?”, “Other than the event, how much did you focus on other things that could be going on in your life?”, and “How much did you consider aspects of the situation unrelated to the event when making your predictions?” After reverse-scoring responses to the last two items, all four were averaged into a focalism index (Cronbach’s $\alpha = .71$) with higher scores indicating more focus on the central event. The focalism index was analyzed to examine whether focalism could account for the effect of self-affirmation on affective forecasting.

Mood Participants’ reports, anchored by 1 (not at all) and 9 (very much), of how happy they felt “right now” and their reverse-scored reports of how sad they felt “right now” were averaged into a single positive mood index ($r = .75$) and analyzed to examine whether positive mood could account for the effect of self-affirmation in affective forecasting (Cohen et al. 2000; Sherman et al. 2000).

Results and discussion

Affective forecasts

We subjected the affective forecast index to a 2 (Affirmation: Self-affirmation or No-affirmation) \times 2 (Event valence: Negative or Positive) ANCOVA that controlled for baseline affect.⁴ Main effects of affirmation, $F(1, 56) = 7.57, p = .008, \eta_p^2 = .12$, and event valence, $F(1, 56) = 87.49, p < .001, \eta_p^2 = .61$, were qualified by a significant interaction, $F(1, 56) = 9.53, p = .003, \eta_p^2 = .15$

³ Analyzing each appraisal separately in the mediated moderation revealed the same pattern as analysis of the composite index. The relief appraisal ($\beta = .48, p < .001$) mediated the affirmation by event valence interaction ($\beta = -.09, p = .187$) and the reverse scored disturbing appraisal ($\beta = .24, p = .012$) mediated the affirmation by event valence interaction ($\beta = -.14, p = .071$). Thus, we maintained a composite of the two items to better simultaneously assess appraisals for both the positive and negative events.

⁴ The covariate of baseline affect did not interact with the independent variables.

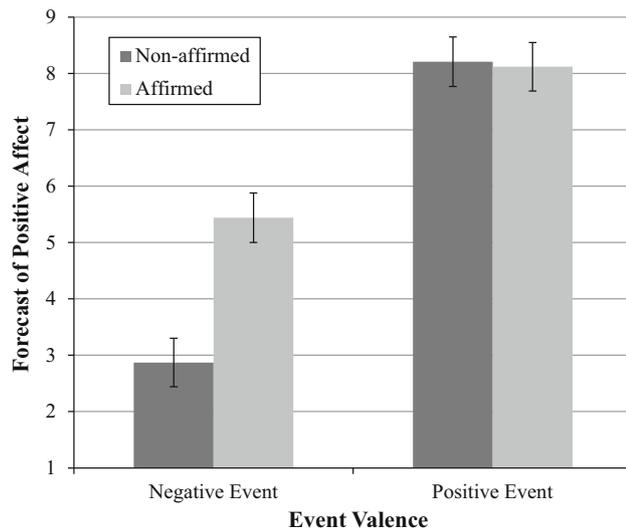


Fig. 1 Affective forecast positivity as a function of affirmation condition and the valence of the imagined event, Experiment 1

(Fig. 1). Pairwise comparisons, using the Bonferroni correction, showed that affirmed participants expected to react just as positively to the positive event ($M = 8.12$, $SE = .43$) as participants who were not affirmed ($M = 8.21$, $SE = .44$), $F(1, 56) = .02$, $p = .886$. In contrast, affirmed participants expected to react more positively to the negative event ($M = 5.44$, $SE = .44$) than participants who were not affirmed ($M = 2.87$, $SE = .43$), $F(1, 56) = 17.32$, $p < .001$, $\eta_p^2 = .24$. Consistent with our expectations, this asymmetrical pattern for positive and negative events suggested that self-affirmation reduced forecast extremity for negative events. We suggest that self-affirmation brings on-line explanatory and construal processes (i.e. appraisals) that specifically counteracted the typical effects of immune neglect on negative forecasts.

Appraisals

To further explore the operation of the psychological immune system consequences of self-affirmation, appraisals of the event were subjected to an ANOVA. Main effects of affirmation, $F(1, 57) = 6.75$, $p = .012$, $\eta_p^2 = .11$, and event valence, $F(1, 57) = 52.24$, $p < .001$, $\eta_p^2 = .48$, were qualified by an affirmation by event valence interaction, $F(1, 57) = 9.62$, $p = .003$, $\eta_p^2 = .14$. Pairwise comparisons, using the Bonferroni correction, showed that the positive event was appraised similarly by affirmed participants ($M = 7.53$, $SE = .46$) and participants who were not affirmed ($M = 7.77$, $SE = .47$), $F(1, 57) = .13$, $p = .721$. In contrast, affirmed participants appraised the negative event as less disturbing ($M = 5.60$, $SE = .47$) than participants who were not affirmed ($M = 2.93$, $SE = .47$), $F(1, 57) = 15.98$, $p < .001$,

$\eta_p^2 = .22$. Thus, the interaction pattern for appraisals mirrored the interaction pattern observed for affective forecasts, further implicating the activation of the psychological immune system.

Mediation by appraisals

Self-affirmation influenced affective forecasting for the negative event only, so we conducted mediated moderation analyses (see Baron and Kenny 1986; Muller et al. 2005) to test whether appraisals mediated the interactive effect of affirmation and event valence on affective forecasting.⁵ Because the affirmation by event valence interaction pattern on the appraisal index matched the interaction pattern on the affective forecast index, one mediation pattern may be that the appraisals were directly related to forecasts despite positivity or negativity of the imagined event. An alternative possibility may be that the appraisal index is relevant only to affective forecasting for the negative event and unrelated to affective forecasting for the positive event (given that appraisals function as a coping mechanism for negative events).

The mediated moderation model tested for both possibilities by examining the direct relation of appraisal on forecasting and the appraisal by event valence interaction on forecasting.

We confirmed that the affirmation (no affirmation = -1 , affirmation = 1) by event valence (negative = -1 , positive = 1) interaction significantly predicted the affective forecast index, $\beta = -.24$, $p = .003$, and appraisal index, $\beta = -.28$, $p = .003$. Following Muller et al. (2005), when baseline affect, affirmation, event valence, the affirmation by event valence interaction, appraisal index, and the appraisal by event valence interaction were included as simultaneous predictors of the affective forecast index, the affirmation by event valence interaction was no longer significant, $\beta = -.05$, $p = .417$, but appraisals of the event were significantly related to forecasts, $\beta = .50$, $p < .001$. Further, the event valence by appraisal interaction was also significant, $\beta = -.15$, $p = .040$, reflecting the expected pattern that appraisals were strongly related to forecasts for the negative imagined event, $\beta = .70$, $p < .001$, but not related to forecasts for the positive event, $\beta = .30$, $p = .054$. Thus, affirmation improved appraisals of the negative event itself, consistent with activated coping resources, and appraisals were only related to affective forecasts for the negative event, not positive event.

⁵ Because the affective forecasts preceded the completion of the focalism items, we chose to also assess appraisals of the imagined event after affective forecasts to make both mediators as comparable as possible. Mediation tests do not require that mediators be measured before dependent variables (MacKinnon 2008; Wood et al. 2007).

Focalism

When the focalism index was subjected to an ANOVA, there was no main effect of affirmation, $F(1, 57) = .05$, $p = .825$, $\eta_p^2 = .00$, nor event valence, $F(1, 57) = .87$, $p = .355$, $\eta_p^2 = .02$. However, a significant affirmation by event valence interaction emerged, $F(1, 57) = 4.93$, $p = .030$, $\eta_p^2 = .08$. Pairwise comparisons, using the Bonferroni correction, showed that self-affirmation did not affect participants' relative attention to the positive event [Self-affirmation $M = 6.25$, $SE = .37$; No-affirmation, $M = 5.50$, $SE = .38$; $F(1, 57) = 2.03$, $p = .160$] or the negative event [Self-affirmation $M = 5.07$, $SE = .38$; No-affirmation $M = 5.98$, $SE = .38$], $F(1, 57) = 2.94$, $p = .092$]. Instead, the focalism interaction was driven by affirmed participants paying more relative attention to the positive event than the negative event, $F(1, 57) = 5.06$, $p = .028$, $\eta_p^2 = .08$. The focalism index was not affected by affirmation or event valence. Additionally, the interaction pattern differed from that of the affective forecast index and the appraisal index. Thus, focalism was ruled out as an explanation of the affirmation by event valence interaction effect on affective forecasting.⁶

Mood

As expected, the lack of significant main effects or interaction on the positive mood index revealed that the affirmation manipulation did not impact current affective states. Affirmed participants reported similar levels of positive affect ($M = 6.19$, $SE = .29$) to non-affirmed participants [$M = 6.98$, $SE = .30$; $F(1, 57) = 3.69$, $p = .060$]. Additionally, neither positive ($M = 6.85$, $SE = .29$) nor negative ($M = 6.32$, $SE = .30$) event valence affected positive mood, $F(1, 57) = 1.66$, $p = .202$, and there was no interaction between affirmation and event valence, $F(1, 57) = .01$, $p = .940$. Moreover, there was no correlation between participants' affective forecasts and positive mood, $r = -.05$, $p = .726$.

Overall, these findings are consistent with the idea that self-affirmation weakened the extremity of affective forecasting about a negative event by activating the psychological immune system and reducing bias from immune neglect. The enhanced coping processes that self-

affirmation is known to bring on-line improved appraisals of the negative event and these in turn accounted for the more favorable affective forecasts for imagined negative events. Self-affirmation uniquely impacted affective forecasts for negative rather than positive events, consistent with the immune neglect hypothesis.

Although the appraisal index assessed evaluations of the event itself that are relevant to the explanatory process of the affective adaptation model (Wilson and Gilbert 2008) and the forecast reflected anticipated reactions to the event relevant to the reacting and adapting processes of the AREA model, one concern might be that the appraisal measure was not distinct from the forecast measure. If the appraisal measure and forecast measure were empirically indistinguishable, then the two measures would be highly correlated across all conditions. However, the data strongly refute this concern. The measures were associated only when participants produced forecasts for the negative event, indicating that the two measures captured different aspects of the forecasting process. Even in the negative event condition, where appraisal was most strongly related to forecasting, appraisal and forecasting shared only 14 % of variance, indicating that the two measures reflect different constructs. These results support the notion that self-affirmation can change the way that negative events are perceived. Consequently, affirmation can change how people expect to react to anticipated negative events.

Self-affirmation likely influenced affective forecasting by activating coping resources that, in turn, influenced downstream appraisals of the events (Sherman et al. 2009b). Additionally, we expected affirmation to influence forecasting through appraisal. We did not expect affirmation to influence focalism on the central event or participants' current mood. The findings were consistent with both those expectations.

Experiment 2

In Experiment 2, we sought to replicate the results of Experiment 1 and provide evidence that another resource, self-esteem, could not explain the impact of self-affirmation on affective forecasts. The second experiment closely followed the design and procedures of Experiment 1. However, trait and state self-esteem were assessed as well as mood. Additionally, despite the well-established nature of our affirmation manipulation in Experiment 1, we implemented a different manipulation in order to generalize across methods. Finally, to rule out any possible influence of the different amounts of money gained or lost in Experiment 1, participants imagined losing the same amount of money in the negative event condition as they imagined gaining in the positive condition.

⁶ Additional analysis of participants in the negative event condition also showed that when affirmation, appraisals, and focalism were entered simultaneously, only appraisals remained a significant predictor of forecasts, $\beta = .60$, $p < .001$. Furthermore, when standardized appraisal and focalism indices were entered as a repeated measure into a $2 \times 2 \times 2$ mixed model ANOVA with affirmation and valence as between subjects factors, the two measures were revealed as distinct, with only appraisals being affected by affirmation for the negative event, consistent with our primary reported results.

Method

Participants and design

Forty-seven students (22 men, 25 women) at a large Western university were paid \$5 to participate and were randomly assigned to a 2 (Affirmation: Self-affirmation or No-affirmation) \times 2 (Event valence: Negative or Positive) between-subjects design.

Procedure

Participants reported the extent to which they felt happy, cheerful, glad, and satisfied “in general” using 9-point scales anchored by 1 (not at all) and 9 (very much; Cronbach's $\alpha = .93$) as a measure of their baseline affect.

Affirmation manipulation Participants completed another well-established essay-writing self-affirmation task (McQueen and Klein 2006; Sherman and Cohen 2006; Sherman et al. 2009b). First, they ranked 10 personal values (e.g., sense of humor, social skills, business/money) in order of importance and subsequently completed a writing exercise. Participants in the self-affirmation condition had unlimited time to write an open-ended essay about their most important value. Specifically, they were asked to describe why they ranked this value as most important to them and to describe a time in their life when it was important to them. In contrast, participants in the no-affirmation condition wrote an essay about their 9th ranked value in which they explained why this value might be important to a typical student at their university and imagined a time when this value would be important in the life of a typical student at their school.

Affective forecast Participants in the negative event condition imagined receiving an unexpected bill for \$300 from their school, whereas participants in the positive event condition imagined receiving an unexpected refund of \$300 from their school. Participants then used 9-point scales anchored by 1 (not at all) and 9 (very much) to forecast how happy, cheerful, glad, and satisfied they would feel immediately after the imagined event occurred (Cronbach's $\alpha = .99$).

Appraisals Participants reported appraisals of the event identical to Study 1. The reverse scored appraisal of how “disturbing” the event was averaged with the appraisal of how “relieving” the event was so that higher values indicated more positive appraisals of the event ($r = .54$).

Focalism Participants used items identical to Study 1 to report relative attention to the event versus other possible information. After reverse-scoring the items assessing increased attention to other contextual information, the four items were averaged into a focalism index

(Cronbach's $\alpha = .67$) with higher scores indicating more focus on the central event.⁷

Self-esteem Participants responded to items from one trait and two state self-esteem measures presented in random order. Ten items from Rosenberg's (1965) trait self-esteem scale (e.g., On the whole, I am satisfied with myself.), as well as seven performance state self-esteem items (e.g., I feel frustrated or rattled by my performance.) and seven social state self-esteem items (e.g., I am worried about what other people think of me.) from Heatherton and Polivy's (1991) state self-esteem measure were completed using 7 point scales anchored by 1 (strongly disagree) and 7 (strongly agree). After reverse-scoring as appropriate, items were averaged into three reliable scales of trait self-esteem (Cronbach's $\alpha = .91$), performance state self-esteem (Cronbach's $\alpha = .90$), and social state self-esteem (Cronbach's $\alpha = .89$).

Mood Participants reported their current mood by answering a different question from Experiment 1, in order to generalize across mood measures. Participants responded to the question “How would you describe your mood right now?” using a 9-point scale anchored by 1 (very bad mood) and 9 (very good mood).

Results and discussion

Affective forecasts

Subjecting the affective forecast index to a 2 (Affirmation) \times 2 (Event valence) ANCOVA that controlled for baseline affect revealed a main effect of event valence, $F(1, 42) = 61.77, p < .001, \eta_p^2 = .60$, but no main effect of the affirmation manipulation, $F(1, 42) = 1.13, p = .293$. More importantly, a significant affirmation by event valence interaction emerged once again, $F(1, 42) = 5.01, p = .031, \eta_p^2 = .11$ (Fig. 2). Pairwise comparisons showed that affirmed participants expected to react just as positively to the positive event ($M = 7.19, SE = .57$) as participants who were not affirmed ($M = 7.87, SE = .57, F(1, 42) = .70, p = .406$). In contrast, affirmed participants expected to react more positively to the negative event ($M = 3.93, SE = .57$) than participants who were not affirmed ($M = 2.01, SE = .60, F(1, 42) = 5.33, p = .026, \eta_p^2 = .11$). This asymmetrical pattern for positive and negative events suggested that self-affirmation reduced forecast extremity via immune neglect.

⁷ The set of appraisal items and the set of focalism items were presented in random order.

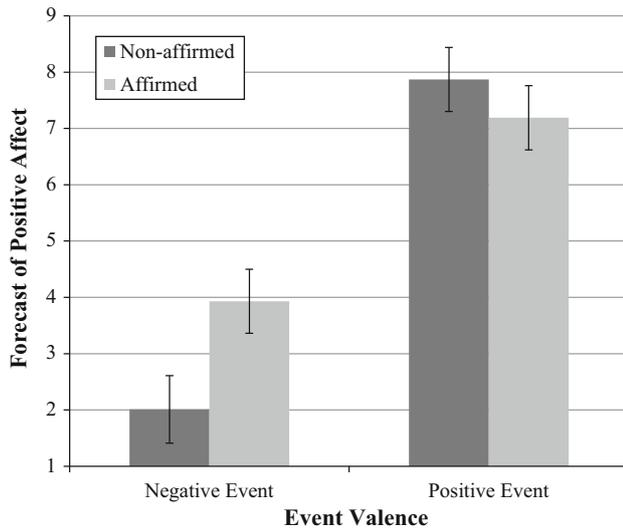


Fig. 2 Affective forecast positivity as a function of affirmation condition and the valence of the imagined event, Experiment 2

Appraisals

Similarly, a main effect of event valence on appraisals emerged, $F(1, 43) = 39.70$, $p < .001$, $\eta_p^2 = .48$, but no main effect of the affirmation was observed, $F(1, 43) = 3.25$, $p = .329$. An affirmation by event valence interaction emerged again, $F(1, 43) = 8.20$, $p = .006$, $\eta_p^2 = .16$. Pairwise comparisons showed that the positive event was appraised similarly by affirmed participants ($M = 6.75$, $SE = .53$) and participants who were not affirmed ($M = 7.75$, $SE = .53$), $F(1, 43) = 1.80$, $p = .187$. In contrast, affirmed participants appraised the negative event as less disturbing ($M = 4.92$, $SE = .53$) than participants who were not affirmed ($M = 2.86$, $SE = .55$), $F(1, 43) = 7.25$, $p = .010$, $\eta_p^2 = .14$. As in Experiment 1, the pattern of appraisals mirrored the pattern of affective forecasting.

Mediation by appraisals

We once again used mediated moderation analysis to test whether appraisals (driven by immune system functioning) mediated the affirmation by event valence effect on participants' affective forecasting. We expected to replicate the pattern from Experiment 1 such that appraisals would be more strongly related to forecasts for negative events than forecasts for positive events.

We confirmed the affirmation by event valence interaction on affective forecasts, $\beta = -.21$, $p = .031$, and appraisals, $\beta = -.30$, $p = .006$. When baseline affect, affirmation, event valence, the affirmation by event valence interaction, appraisals, and the appraisal by event valence interaction were included as simultaneous predictors of

affective forecasts, the affirmation by event valence interaction on affective forecasts was no longer significant, $\beta = -.02$, $p = .82$, but appraisal was significantly related to affective forecasting, $\beta = .58$, $p < .001$. Further, as in Experiment 1, the appraisal by event valence interaction was significant, $\beta = -.24$, $p = .018$, which reflected a stronger association between appraisals and forecasts in the negative event condition, $\beta = .82$, $p < .001$, than in the positive event condition, $\beta = .34$, $p = .039$. Once again, this different pattern for negative and positive events demonstrated the empirical distinctiveness of the appraisal and forecast measures. More importantly, these results bolster the conclusions from Experiment 1 and provide further evidence that affirmation can improve forecasts for negative events specifically by engaging the psychological immune system's appraisal coping processes for explaining negative events.

Focalism

An identical ANOVA on the focalism measure showed that there were no significant main effects of affirmation, $F(1, 43) = .01$, $p = .940$, or valence $F(1, 43) = .05$, $p = .833$ on focalism. There was also no significant affirmation by event valence interaction, $F(1, 43) = 3.96$, $p = .053$. Pairwise comparisons showed that self-affirmation did not significantly affect focalism about the positive event [Self-affirmation $M = 6.81$, $SE = .45$; No-affirmation, $M = 5.88$, $SE = .45$; $F(1, 43) = 2.18$, $p = .147$] or the negative event (Self-affirmation $M = 5.81$, $SE = .45$; No-affirmation $M = 6.68$, $SE = .47$), $F(1, 43) = 1.79$, $p = .188$). Moreover, there was no significant difference between negative and positive events for affirmed participants, $F(1, 43) = 1.55$, $p = .221$, or for non-affirmed participants, $F(1, 43) = 2.48$, $p = .123$. There was no statistically significant effect of affirmation or event valence on focalism in this analysis. Thus, focalism was ruled out as an alternative explanation of the effect of affirmation on affective forecasting.⁸

Self-esteem

As expected, there were no main effects of affirmation on reported trait self-esteem (Self-affirmation $M = 5.57$, $SE = .21$; No-affirmation $M = 5.28$, $SE = .22$; $F(1, 43) = .91$, $p = .346$), state performance self-esteem [Self-affirmation $M = 5.26$, $SE = .24$; No-affirmation $M = 5.07$, $SE = .24$; $F(1, 43) = .32$, $p = .575$], or on

⁸ As in Experiment 1, analysis of participants in the negative event condition showed that when affirmation, appraisals, and focalism were entered simultaneously, only appraisals remained a significant predictor of forecasts, $\beta = .82$, $p < .001$.

state social self-esteem [Self-affirmation $M = 4.22$, $SE = .26$; No-affirmation $M = 3.82$, $SE = .27$; $F(1, 43) = 1.09$, $p = .303$]. Further, there were no affirmation by event valence interactions on any of the three self-esteem measures [trait $F(1, 43) = .14$, $p = .710$; state performance $F(1, 43) = .21$, $p = .649$; state social $F(1, 43) = .41$, $p = .528$]. Together, these results indicate that self-esteem could not account for the effects of self-affirmation on affective forecasts.⁹

Mood

Once again, a 2 (Affirmation) \times 2 (Event valence) ANOVA on the positive mood index revealed that the affirmation manipulation did not impact positive mood [Self-affirmation $M = 6.75$, $SE = .33$; No-affirmation $M = 6.35$, $SE = .34$; main effect of affirmation $F(1, 43) = .70$, $p = .401$; main effect of valence $F(1, 43) = .15$, $p = .703$; affirmation by event valence interaction $F(1, 43) = .10$, $p = .750$]. Moreover, there was no correlation between participants' affective forecasts and positive mood, $r = .10$, $p = .507$.

General discussion

Results from two studies show that self-affirmation can reduce the extremity of affective forecasting for negative imagined events. The pattern of affective forecasting and the full mediation by participants' cognitive appraisals of the event suggest that self-affirmation activated psychological resources for coping. These resources influenced how people viewed the threatening event, in line with theoretical conceptions of self-affirmation and affective adaptation and coping (Steele 1988; McQueen and Klein 2006; Wilson and Gilbert 2008). When self-affirmation occurred, people viewed the event as less disturbing and, as a consequence, anticipated feeling better in reaction to it. That is, the activation of coping resources that typically occur with self-affirmation appeared to counter the neglect of coping resources typical of affective forecasting for negative events.

Although the current findings are consistent with the interpretation that self-affirmation reduces bias in forecasting from immune neglect because of the activation of coping resources, we have no direct evidence of that activation of resources. Providing such evidence is not an easy task. Direct measurement of the coping processes activated

by self-affirmation could make the putative impact of the self-affirmation manipulation obvious to participants. Unfortunately, such measurement could also impair the effectiveness of a self-affirmation manipulation, which functions best when its purpose is concealed (Sherman, Cohen et al. 2009). Because of this, we relied on the logic that affirmation-induced coping resources would be reflected in appraisal measures that are typically used to assess individuals' perceptions of psychological resources and situational demands (Tomaka et al. 1993). Specifically, we assessed appraisals that change as a function of the coping processes that self-affirmation activates. This is also why we focused on appraisals that would be relatively more important to the negative event. This strategy allowed us to demonstrate the impact that self-affirmation had on reducing bias related to immune neglect.

It is also possible that we failed to detect an effect of self-affirmation on forecasting for positive events because we used a composite measure of affect. However, examinations of each single affect item that constituted that measure also failed to show an affirmation effect. Thus, it is not the case that the effect was lost in the averaging process.

Similarly, the composite appraisal measure may be less informative than the individual items that constitute it. However, examining the composite is the most theoretically sound approach in order to capture the potential variations in both positive and negative appraisals for both positive and negative hypothetical events. Appraisals of relief work well for positive events but not negative events; appraisals of being disturbed work well for negative events but not positive events. Therefore, their composite is best able to capture the full variation in appraisals that forecasters may make across negative and positive scenarios.

Additionally, the high values of the forecasts for the positive event may suggest a ceiling effect that prevented self-affirmation from increasing positive forecasts. However, if self-affirmation was reducing bias in forecasting for positive events as for negative events, we would expect to see more muted forecasts of positive affect, rather than the positivity that we found or even more extreme positivity. Indeed, previous research has demonstrated that a *pleasure paradox* exists whereby the cognitive resources used to explain a positive event reduce people's actual and forecasted positive emotions (Wilson et al. 2005; Wilson and Gilbert 2005). We do not see this effect for forecasts for the positive event following our affirmation, suggesting that affirmation did not reduce the extremity of forecasts for positive events.

Another possible explanation for self-affirmation's lack of effect on affective forecasting for positive events comes from the AREA model of affective adaptation (Wilson and Gilbert 2008) summarized earlier. This model holds that

⁹ In a separate sample, no statistically significant effect of the affirmation manipulation was found on self-esteem or mood even when participants completed the measures immediately after the affirmation manipulation.

emotional reactions to positive events might be mitigated by explanation and adaptation, just like emotional reactions to negative events. However, the model also states that affective adaptation, or subduing of an emotional reaction, is unnecessary if there is less uncertainty about the event itself. Thus, cognitive appraisal processes are not engaged, and the original emotional response is maintained.

We suggest that students receiving a reimbursement from their university either quickly explain it as a benefit or at the very least, experience less uncertainty about and less need to explain this positive event. Thus, cognitive appraisals are not engaged as explanatory coping mechanisms, and there is no reduction in extremity of positive forecasts. Students learning that they must pay more to the university—in the case of the negative event—however, may experience uncertainty about why the university requires their money. They need to engage appraisals to cope with the unexpected and uncertain negative event, and the affirmation makes this possible. Therefore, we see reduced bias in forecasts for the negative event. To our knowledge, this is the first time that the implications of self-affirmation and appraisal coping processes on the immune neglect bias in affective forecasting have been explored and these results and mechanisms are ripe for further investigation.

Finally, the current studies do not include groups of participants who actually experienced the negative or positive events that the affective forecasters imagined. This makes it unwise to draw strong conclusions about the accuracy of the forecasts that participants made. Nevertheless, the vast majority of studies indicate that errors in affective forecasts are due to overestimation, rather than underestimation, of affective reactions, making forecasts more extreme than experiences (see Wilson and Gilbert 2003). Thus, it seems reasonable to assume that using self-affirmation to reduce the extremity of negative affective forecasts will also increase the accuracy of such forecasts; however, this remains a question open for research.

These findings extend the conceptualization of self-affirmation theory, which has typically focused on how people cope with current threats and stressors, to situations where people contemplate imagined threats. In this study, an actual active threat was not necessary to observe the positive impact of self-affirmation. We argue that this provides a novel context in which self-affirmation can buffer against threats. We suggest that self-affirmation prior to an imagined threat is an effective intervention for reducing bias in affective forecasting, particularly if the threat could potentially happen in the future. For example, we may spend the week before asking our boss for a raise imagining that event (i.e. the threat). The event is imagined at this point, but could become real in the future. Our use of imagining losing or gaining tuition money may have had

similar real potential for the students in these studies. Understandably, researchers often focus on how people deal with threats in the present, but cognitive representations of anticipated threats can also be influenced by self-affirmation processes. Additionally, the focus on loss or gain could apply to any potential context in which we stand to lose or gain anything self-relevant, especially as concern for loss and gain is central to such motivational processes as regulatory focus in preventing or promoting outcomes (Higgins 1998).

While these studies are the first (that we are aware of) to investigate whether self-affirmation can impact imagined events, there is some evidence that imagined threats function similarly to real threats in judgments (Skitka 2002). Additionally, other imagined or hypothetical events and emotions have been shown to affect emotional, social and motivational processes (e.g. Moons et al. 2015; Crisp and Turner 2009; Katzir et al. 2010). Perhaps self-affirmation may be bounded to affect only imagined events that are self-relevant or unexpected and negative, as we find. However, this suggests that future work should more closely examine how self-affirmation impacts construals of imagined, current, future, and past negative events. A more comprehensive understanding of how self-affirmation shapes such construals could reveal that simply affirming a central value makes asking for a raise, addressing marital issues, and visiting a physician less upsetting than people typically expect.

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