

Examining Beliefs About the Benefits of Self-Affirmation for Mitigating Self-Threat

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Abstract

Self-affirmation—reflecting on a source of global self-integrity outside of the threatened domain—can mitigate self-threat in education, health, relationships, and more. Whether people recognize these benefits is unknown. Inspired by the metamotivational approach, we examined people’s beliefs about the benefits of self-affirmation and whether individual differences in these beliefs predict how people cope with self-threat. The current research revealed that people recognize that self-affirmation is selectively helpful for self-threat situations compared with other negative situations. However, people on average did not distinguish between self-affirmation and alternative strategies for coping with self-threat. Importantly, individual differences in these beliefs predicted coping decisions: Those who recognized the benefits of self-affirmation were more likely to choose to self-affirm rather than engage in an alternative strategy following an experience of self-threat. We discuss implications for self-affirmation theory and developing interventions to promote adaptive responses to self-threat.

Keywords

self-affirmation, self-threat, motivation, metamotivation, beliefs

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People want to view themselves positively; yet threats to these positive self-views are ubiquitous. First-year undergraduates, for example, face various self-threats, including social rejection, negative feedback, and bad grades. One effective response to self-threat is self-affirmation—reflecting on a source of global self-integrity outside of the threatened domain (Sherman & Cohen, 2006; Steele, 1988). Research has documented the benefits of self-affirmation in multiple domains including education, health, and relationships (Cohen & Sherman, 2014). Given the pervasiveness of self-threats, examining what people know about self-affirmation may shed light on self-directed adaptive coping. The present research examines people’s beliefs about the usefulness of self-affirmation for self-threat compared with other negative situations and their beliefs about the efficacy of self-affirmation compared with other responses to self-threat. Importantly, we examine whether individual differences in these beliefs predict how people cope with self-threat.

Self-Affirmation Theory

Self-affirmation theory posits that people want to maintain their self-integrity—their view of the self as “morally and adaptively adequate” (Sherman & Cohen, 2006; Steele, 1988)—and restore it when experiencing self-threat. A smoker who learns that smoking increases the risk of lung disease can cope in many ways. They could be defensive

(e.g., downplay the risk; Sherman et al., 2000)—though this strategy may fail to serve them in the long term. Alternatively, the smoker may self-affirm. Doing so may help them cope, accept the threatening information, and change their behavior to prioritize health (Epton & Harris, 2008).

A common manipulation of self-affirmation is the values affirmation exercise (Cohen & Sherman, 2014; Fein & Spencer, 1997) in which participants select their most important values from a list and write about why those values are important to them. This brief yet powerful exercise can buffer people from various self-threats. For example, caffeine drinkers who completed the values affirmation exercise (relative to a control activity) were less defensive about information linking caffeine consumption with cancer (Sherman et al., 2000). Values affirmation has also buffered Black and Latinx students from the effects of stereotype threat (the

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concern that one might be negatively stereotyped), leading to reductions in underperformance for 2 to 3 years (Brady et al., 2016; Cohen et al., 2009; Sherman et al., 2013) and promoting the probability of college enrollment 7 to 9 years later (Goyer et al., 2017).

Although self-affirmation interventions can lead to positive outcomes (for a meta-analysis, see Wu et al., 2021), there have been notable replication failures (Dee, 2015; Hanselman et al., 2017; Protzko & Aronson, 2016). Recent efforts have therefore sought to understand when and why interventions are successful (Easterbrook et al., 2021). One individual-level mechanism that has been proposed for successful interventions is spontaneous self-affirmation—people’s self-initiated elaboration on their values. Spontaneous self-affirmation can be assessed as a *response* to self-threat (though self-affirmation interventions typically occur before a self-threat; Critcher et al., 2010). At-risk Latinx students in a self-affirmation intervention were more likely to spontaneously self-affirm when writing about academic stressors, and this spontaneous self-affirmation mediated the benefits of the intervention on grades (Brady et al., 2016).

Most spontaneous self-affirmation research has adopted a trait approach: participants to self-report their tendency to engage in self-affirmation (Harris et al., 2019; example item: “When I feel threatened or anxious by people or events, I find myself thinking about my values”). Individual differences in these tendencies have been linked to positive outcomes in health and well-being (Emanuel et al., 2018; Persoskie et al., 2015; Taber et al., 2016). Although the trait approach can identify who does or does not engage in spontaneous self-affirmation, it cannot explain *why* some people may not engage in this effective response to self-threat. Understanding these mechanisms may help not only reveal the necessary conditions required for people to use self-affirmation effectively as a coping tool but may also improve existing interventions. We address this issue directly by adopting a regulatory perspective, suggesting that people may differ in their situation-specific beliefs about the benefits of self-affirmation (see Mischel & Shoda, 1995).

Self-Affirmation Beliefs

Examining situation-specific beliefs is critical because people’s understanding of how the world works has profound consequences for how they navigate it (Heider, 1958; Mischel & Shoda, 1995; Molden & Dweck, 2006; Ross, 1989). Understanding people’s beliefs about self-affirmation may highlight the underlying mechanisms for self-directed implementation of self-affirmation, explain the variability in trait-like spontaneous self-affirmation, inform when self-affirmation exercises will be most effective, and provide novel solutions for designing interventions. Investigating beliefs directly, for example, can address whether people’s reports of spontaneous self-affirmation are specific to

self-threat or generalize to any negative situation. Examining people’s beliefs may also reveal why some might *not* engage in spontaneous self-affirmation. People may erroneously believe that self-affirmation is not helpful for addressing self-threats or that other strategies are better. These possibilities may explain why some self-affirmation interventions may not work: They may present people with a strategy they think is unhelpful and/or fail to address competing misbeliefs about unhelpful alternative strategies. Assessing people’s beliefs affords the opportunity to begin addressing these questions.

Applying a Metamotivational Approach to Examine Self-Affirmation Beliefs

We adopt a metamotivational approach—an emerging approach in motivation science that examines how people regulate the quantity and quality of their motivational states to achieve desired ends (Fujita et al., 2019; Miele et al., 2020; Scholer et al., 2018). This approach suggests that regulating motivation requires recognizing what motivational state is beneficial in a situation and what strategies can instantiate that state. When experiencing self-threat, people must recognize what will help them cope. Without this knowledge, people may struggle to regulate their motivation.

Consistent with theorizing in metamotivation, we suggest that self-affirmation beliefs may be relatively tacit. People may recognize the benefits of self-affirmation but may be unable to articulate these beliefs and may be unaware of how much they know. When experiencing self-threat, people may draw on their beliefs to cope but may do so without awareness. Although previous research suggests that awareness of the goal of self-affirmation might undermine its effects (Sherman et al., 2009), subsequent research demonstrates that awareness does not undermine self-affirmation when people are able to freely choose to self-affirm (Silverman et al., 2013; Walton et al., 2015).

The current work assesses beliefs using methods from tacit knowledge research (Wagner & Sternberg, 1985): Presenting participants with different scenarios and asking them to rate the usefulness of various responses. With these types of assessments, research shows that people have metamotivational knowledge in the context of regulatory focus (Scholer & Miele, 2016) and construal-level theories (Nguyen et al., 2019). Importantly, individual-level variability in metamotivational beliefs can predict self-regulatory outcomes (e.g., academic performance; MacGregor et al., 2017; Nguyen et al., in press). By examining people’s self-affirmation beliefs, this work highlights understudied factors that may promote adaptive coping with self-threat. Moreover, this work has implications for theories of motivation—by examining how people regulate their motivation in response to self-threat, and for self-affirmation theory—by documenting what laypeople believe about self-affirmation.

Table 1. Results From Sensitivity Analyses for Studies in the Main Text.

Study	Sample considerations	Target <i>N</i>	Recruited <i>N</i>	Final <i>N</i>	Effect size
1a	Mixed design (between and within)	300	302	266	$\eta_p^2 = .005$
1b	Mixed design (between and within)	300	303	283	$\eta_p^2 = .005$
1c	Mixed design (between and within)	300	303	289	$\eta_p^2 = .005$
2a	Fully within-subjects	100	99	86	$\eta_p^2 = .016$
2b	Fully within-subjects	100	103	89	$\eta_p^2 = .015$
3a	Includes binary choice measure	200	201	198	OR = 1.52
3b	Includes binary choice measure	200	199	172	OR = 1.57

Note. The final *N* for these studies provided 80% power to detect the effect sizes reported above. OR = odds ratio.

The Present Research

Ten studies (main text: 7 studies; Supplemental Online Materials—SOM: 3 studies) examine people’s self-affirmation beliefs and the consequences of such beliefs. We examine two types of beliefs. First, we examine beliefs about the usefulness of self-affirmation for self-threat situations compared with other negative situations: dealing with frustrations (i.e., frustration-comparison; Studies 1a, 2a, 2b, and 3a) and managing physical pain (i.e., pain-comparison; Studies 1b, 1c, and 3b). We refer to these as *situation differentiation beliefs*. Exploring these beliefs reveals whether people understand when it is helpful to engage in self-affirmation.

Second, we examine beliefs about the comparative efficacy of self-affirmation versus alternative strategies for coping with self-threat: reflecting on unimportant values (Studies 1a–1c), thinking positively (Study 2a), affirming in the threatened domain (Study 2b), and recounting (Studies 3a and 3b). We refer to these as *comparative efficacy beliefs*. Exploring these beliefs has important implications for which strategies people use when facing self-threat.

Studies 3a and 3b examine these implications by inducing self-threat and examining whether individual differences in self-affirmation beliefs predict decisions about how to cope. Specifically, these studies examine whether those who understand the benefits of self-affirmation strategically choose to engage in self-affirmation (over an alternative) after experiencing self-threat, providing initial evidence of the downstream consequences of self-affirmation beliefs.

Transparency and Openness

All deidentified data, materials, syntax, and codebooks are available on OSF (https://osf.io/qanp7/?view_only=c74c322f50e64be581f28354078c52ed). We report all measures and manipulations. Here, we report sample size considerations, sensitivity analyses (see Table 1), and exclusions. We based sample sizes on previous metamotivation research (Nguyen et al., 2019). Across studies, we retained only participants’ first survey submission. For Studies 2a, 2b, 3a, and 3b, we excluded participants who failed an attention check (“Please select Somewhat unhelpful.”). Studies 1a and 1b were

conducted after the other studies and in the midst of MTurk data quality concerns (Moss & Litman, 2018); thus, we excluded participants who failed Winograd questions (Bender, 2015).

Studies 1a to 1c

Studies 1a to 1c were initial investigations of people’s self-affirmation beliefs. We asked participants to rate the usefulness of reflecting on their values in scenarios that involved self-threat (self-threat scenarios) or not (comparison scenarios). Some participants rated the usefulness of reflecting on their most important values; others rated the usefulness of reflecting on their least important values. To assess situation differentiation beliefs, we examined whether participants rated self-affirmation (reflecting on one’s most important values) as more helpful in self-threat relative to comparison scenarios. To assess comparative efficacy beliefs, we examined whether participants believed that thinking about their most (vs. least) important values would be more helpful in self-threat scenarios.

Method

Research ethics statement. The Institutional Review Board at The Ohio State University approved all research reported in this article (Protocol #2008B0195: Study 2a; Protocol #2018B0040: all other studies).

Participants. In Study 1a, 302 MTurk workers (136 women, 163 men, 3 non-binary; 191 White/European American, 54 Black/African American, 18 Asian American, 16 Hispanic/Latinx, 15 mixed racial/ethnic identity, 4 Native American, 2 Middle Eastern; 1 Caribbean; 1 did not respond; $M_{\text{age}} = 36.90$, $SD_{\text{age}} = 10.70$) participated in exchange for payment. In Study 1b, 303 Prolific workers (157 women, 146 men; 219 White/European American, 36 Asian American, 18 mixed racial/ethnic identity; 14 Black/African American, 13 Hispanic/Latinx, 2 Native American, 1 Caribbean; $M_{\text{age}} = 33.66$, $SD_{\text{age}} = 10.92$) participated in exchange for payment. In Study 1c, 303 Prolific workers (151 women, 148 men, 3 non-binary, 1 did not respond; 202 White/European

American, 39 Asian American, 22 Hispanic/Latinx, 19 mixed racial/ethnic identity; 19 Black/African American, 1 Middle Eastern, 1 did not report; $M_{\text{age}} = 34.94$, $SD_{\text{age}} = 12.98$) participated in exchange for payment.

Beliefs assessment (Study 1a). We created a self-affirmation beliefs assessment based on previous metamotivation research (Scholer & Miele, 2016). Participants first read that they would learn about strategies that people might use to deal with difficult situations and that some strategies might be helpful whereas others might not be helpful (see SOM). Next, participants were randomly assigned to condition. In the most important values condition, participants read that the “values reflection” strategy involved reflecting on values that matter most to them (religion, creativity, relationships). Participants then selected their most important values from a list and wrote about why those values were important to them. This mirrors the most common self-affirmation manipulation (Sherman et al., 2009).¹ In the least important values condition, participants read that the “values reflection” strategy involved reflecting on why their least important values are important to others. Participants then selected their least important values from a list and wrote about why those values might be important to someone else. This parallels the control condition in previous research (Fein & Spencer, 1997).

Next, participants read 16 scenarios presented in random order. Eight self-threat scenarios described situations in which previous research suggests self-affirmation would be beneficial: receiving threatening health information (Sherman et al., 2000), counter-attitudinal information (Correll et al., 2004), performance threat (Creswell et al., 2005), and negative feedback (Fein & Spencer, 1997). One self-threat scenario read,

Imagine you are a heavy coffee drinker. You have just learned that caffeine consumption can increase the risk of developing certain types of cancer. You think of yourself as healthy person and you find this information distressing. You are tempted to ignore the information and downplay the risk. Imagine that your goal is to accept this threatening health information even though it makes you feel bad about yourself.

By contrast, eight comparison scenarios described general negative situations (managing frustrations). One frustration-comparison condition scenario read,

Imagine that you ordered a drink from a coffee shop near your house. After you’ve already left, you realize the barista got your order wrong. It’s too late for you to turn back and you are somewhat annoyed that you didn’t get the drink you wanted. Imagine that your goal is to accept the situation and move on.

Participants rated the usefulness of the values reflection strategy in each scenario: “To achieve your goal, how helpful do you think it would be for you to use the values reflection

strategy? (i.e., to think about your most/least important values like [participant’s selected values])” (1 = *extremely unhelpful*, 7 = *extremely helpful*).

Beliefs assessment (Study 1b). Study 1b used the same beliefs assessment as Study 1a, but with comparison scenarios about managing physical pain. One pain-comparison scenario read, “Imagine that you slept in an awkward position and as a result, you wake up with a pinched nerve in your neck. You are barely able to turn your head in either direction. Imagine your goal is to manage this situation.” A pilot study confirmed that these scenarios were not less aversive than the self-threat scenarios (the opposite was true; see SOM).

Beliefs assessment (Study 1c). Study 1c used the same beliefs assessment as in Study 1b, with one minor change to clarify the least important values condition. To ensure fidelity to prior operationalizations of self-affirmation control conditions (Fein & Spencer, 1997), participants in the least important values condition in Study 1c responded to this question for each scenario: “To achieve your goal, how helpful do you think it would be for you to use the values reflection strategy? (i.e., to think about your least important values—[participant’s selected values]—and how they may be important to others).”

Results

Analysis approach. In Studies 1a to 1c (and all subsequent studies), we submitted participants’ usefulness ratings to an analysis of variance (ANOVA), which reveals the main effects and interactions.² The critical tests of our research questions are the following three simple effects from paired-samples t-tests. Specifically, we examined participants’ usefulness ratings for self-affirmation across self-threat and comparison scenarios (situation differentiation beliefs). We also examined their usefulness ratings for the alternative strategy across scenarios. Finally, we examined participants’ usefulness ratings for self-affirmation compared with the alternative strategy in self-threat scenarios (comparative efficacy beliefs).

Beliefs about self-affirmation. We submitted participants’ usefulness ratings to a 2 (scenario: self-threat, comparison) \times 2 (values condition: most vs. least important; between-subjects) mixed ANOVA. Studies 1a to 1c revealed the main effects of values condition and scenario (see Table 2). The interaction between scenario and strategy was nonsignificant in Study 1a, marginally significant in Study 1b, and significant in Study 1c. As seen in Figure 1, there was considerable individual-level variability in these beliefs.

Next, we conducted critical simple comparison analyses to examine participants’ context-specific beliefs (see Table 3). Across studies, participants rated self-affirmation as more helpful in self-threat (vs. frustration-/pain-comparison)

Table 2. Results of the 2 (Scenario: self-threat vs. Comparison scenarios) \times 2 (values condition: most vs. Least important) Mixed ANOVA on Usefulness Ratings for Studies 1a – 1c.

Study	<i>F</i>	<i>df</i>	<i>p</i>	η_p^2	CI	Descriptive statistics			
						Self-threat		Comparison	
						<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<i>a) Scenario</i>									
Study 1a	170.816	(1, 264)	< .001	0.393	[0.319, 0.457]	4.584	1.165	3.692	1.322
Study 1b	93.032	(1, 281)	< .001	0.249	[0.179, 0.315]	4.335	1.283	3.564	1.546
Study 1c	98.329	(1, 287)	< .001	0.255	[0.186, 0.321]	4.342	1.378	3.633	1.586
						Most important		Least important	
						<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<i>b) Values Condition</i>									
Study 1a	58.241	(1, 264)	< .001	0.181	[0.115, 0.248]	4.636	0.854	3.689	1.133
Study 1b	88.798	(1, 281)	< .001	0.240	[0.171, 0.307]	4.568	1.046	3.344	1.136
Study 1c	137.466	(1, 287)	< .001	0.324	[0.253, 0.388]	4.753	0.931	3.217	1.272
<i>c) Scenario \times Values Condition</i>									
Study 1a	0.483	(1, 264)	0.488	0.002	[0.000, 0.020]				
Study 1b	2.882	(1, 281)	0.091	0.010	[0.000, 0.038]				
Study 1c	6.216	(1, 287)	0.013	0.021	[0.002, 0.056]				

Note. Study 1a included frustration-comparison scenarios whereas Studies 1b and 1c included pain-comparison scenarios. CI = confidence interval.

scenarios. This is consistent with theory and past research and demonstrates that participants recognize *when* self-affirmation is helpful. Interestingly, participants across studies also rated thinking about their least important values as more helpful in self-threat (vs. frustration-/pain-comparison) scenarios—a finding inconsistent with published findings (Correll et al., 2004; Steele & Liu, 1983). Participants may hold some misbeliefs about the efficacy of some strategies in response to self-threat. Nevertheless, in self-threat scenarios, participants in the most (vs. least) important values condition rated the values reflection strategy as more helpful, consistent with past research (Crocker et al., 2008; Sherman et al., 2000). This suggests that participants recognize that thinking about their most important values is an effective response to self-threat.

Discussion

Studies 1a to 1c suggested that people's self-affirmation beliefs are generally consistent with theory and research on self-affirmation. A supplemental study with a similar design (Study S1—see SOM) replicated these results. Across studies, people believed that self-affirmation is more helpful for coping with self-threat compared with other negative situations (frustrations, physical pain). Thus, people may hold situation differentiation beliefs consistent with self-affirmation theory. Moreover, people believed that thinking about their most versus least important values would be helpful for coping with self-threat. Thus, people's comparative efficacy beliefs were also consistent with past research.

People also held misbeliefs: They believed that reflecting on their least important values was more helpful for self-threat than for other negative situations. The literature suggests that this strategy is not differentially effective across these situations (Correll et al., 2004; Steele & Liu, 1983). Affirming unimportant values typically leads to motivated reasoning effects: Caffeine drinkers tend to be less accepting of threatening health information about caffeine risks than noncaffeine drinkers (Crocker et al., 2008; Sherman et al., 2000). By contrast, affirming important values mitigates such defensiveness and promotes openness to self-threatening information. Perhaps these misbeliefs reflect some form of rationalization—if my least important values are important to others and I am willing to invest time thinking about them, they must have some usefulness.

One limitation of these studies is that the assessment only measured beliefs about values reflection. The misbelief about the least important values could be due to a tendency to endorse any strategy more in self-threat scenarios compared with other negative scenarios. Participants, moreover, may have conflated self-affirmation with “positive thinking” and believed that generating any positive self-relevant thoughts would be effective at countering self-threat, rather than self-affirmation per se. Studies 2a and 2b address these issues.

Studies 1a to 1c and S1 also revealed considerable individual-level variability in people's self-affirmation beliefs. Although people on average recognized the benefits of self-affirmation for coping with self-threat, there was considerable variance. Studies 3a and 3b explore the implications of

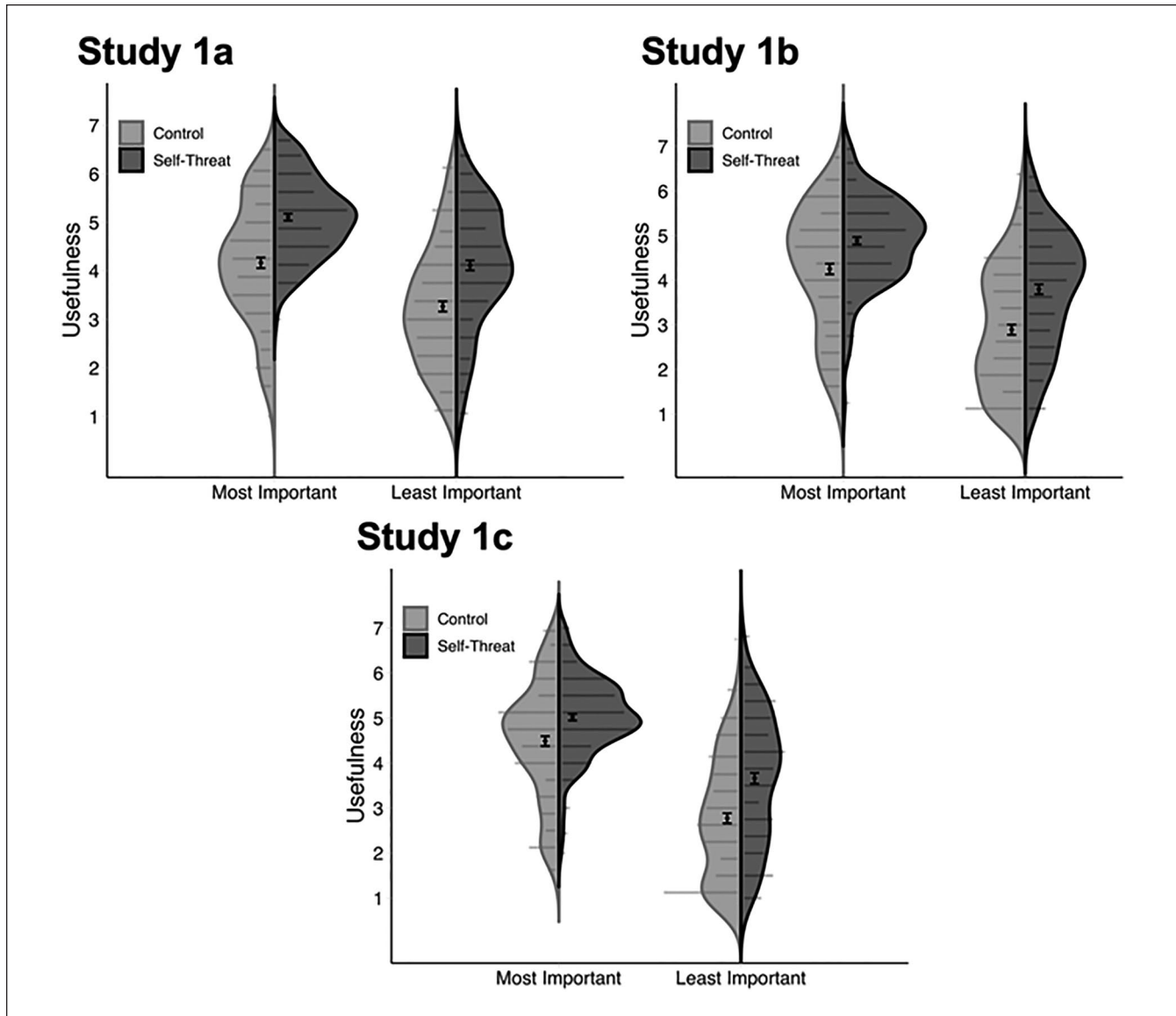


Figure 1. Usefulness ratings as a function of scenario type and values condition.

Note. Study 1a included frustration-comparison scenarios whereas Studies 1b and 1c included pain-comparison scenarios. Graph represents split violin plots with density distributions of usefulness ratings for each condition with individual data points (gray dots horizontally stacked within the shaded regions), descriptive means (black dots) and 95% confidence intervals (black error bars).

this individual-level variability, providing initial evidence for how these beliefs impact how people regulate their responses to threat (vs. other negative) situations.

Studies 2a and 2b

Studies 2a and 2b examined whether people distinguish self-affirmation from plausible alternatives. Using within-subjects designs, we assessed people's beliefs about self-affirmation compared with thinking positively (Study 2a) and affirming in the same domain (Study 2b). To minimize potential demand effects, Study 2b omitted the introduction and writing prompts for each strategy. In addition, whereas Study 2a recruited MTurk participants, Study 2b

recruited undergraduate students, providing a robustness test across different populations. As before, we examined people's situation differentiation and comparative efficacy beliefs. If people conflate self-affirmation with alternative strategies (positive thinking, same-domain affirmations), results should reveal similar patterns of data across scenarios for the two strategies; by contrast, if they distinguish self-affirmation from other strategies, results should reveal diverging patterns.

Method

Participants. In Study 2a, 99 MTurk workers (52 men, 47 women; 62 White/European American, 16 Black/African

Table 3. Descriptive Statistics and t-Tests of Usefulness Ratings for Most and Least Important Values in Self-Threat and Comparison Scenarios for Studies 1a – 1c.

Situation differentiation	Self-threat scenarios		Comparison scenarios		Paired samples t-test
	M	SD	M	SD	
1a: Most Important Values	5.11	0.80	4.17	1.24	$t(125) = 8.81, p < .001, d = .78, 95\% \text{ CI } [0.58, 0.98]$
1b: Most Important Values	4.88	0.97	4.25	1.41	$t(139) = 6.13, p < .001, d = .52, 95\% \text{ CI } [0.34, 0.69]$
1c: Most Important Values	5.02	0.89	4.49	1.32	$t(144) = 5.08, p < .001, d = .42, 95\% \text{ CI } [0.25, 0.59]$

Situation differentiation	Self-threat scenarios		Comparison scenarios		Paired samples t-test
	M	SD	M	SD	
1a: Least Important Values	4.11	1.24	3.27	1.25	$t(139) = 9.72, p < .001, d = .82, 95\% \text{ CI } [0.63, 1.01]$
1b: Least Important Values	3.80	1.32	2.89	1.37	$t(142) = 7.47, p < .001, d = .63, 95\% \text{ CI } [0.44, 0.80]$
1c: Least Important Values	3.66	1.45	2.77	1.35	$t(143) = 9.09, p < .001, d = .76, 95\% \text{ CI } [0.57, 0.94]$

Comparative efficacy	Most important values		Least important values		Independent samples t-test
	M	SD	M	SD	
1a: Self-Threat Scenarios	5.11	0.80	4.11	1.24	$t(264) = 7.68, p < .001, d = .94, 95\% \text{ CI } [0.69, 1.20]$
1b: Self-Threat Scenarios	4.88	0.97	3.80	1.32	$t(281) = 7.87, p < .001, d = .94, 95\% \text{ CI } [0.69, 1.18]$
1c: Self-Threat Scenarios	5.02	0.89	3.66	1.45	$t(287) = 9.62, p < .001, d = 1.13, 95\% \text{ CI } [0.88, 1.38]$

Note. Study 1a included frustration-comparison scenarios whereas Studies 1b and 1c included pain-comparison scenarios. CI = confidence interval.

American, 10 Hispanic/Latinx, 6 Asian American, 3 mixed racial/ethnic identity, 1 Native American, 1 Middle Eastern; $M_{\text{age}} = 33.54, SD_{\text{age}} = 9.01$) participated in exchange for payment. In Study 2b, 103 undergraduate students (68 women, 33 men, 2 non-binary; 61 White/European American, 19 Asian American, 11 mixed racial/ethnic identity; 5 Black/African American, 5 Middle Eastern, 2 Hispanic/Latinx; $M_{\text{age}} = 19.18, SD_{\text{age}} = 1.66$) participated in exchange for course credit.

Beliefs assessment (Study 2a: thinking positively). Participants first read that they would learn about strategies to help deal with difficult situations. As in Studies 1a and 1b, participants read that the “values reflection” strategy involved reflecting on the values that matter most to them, selected their most important values from a list, and then wrote about why those values were important to them. To examine whether participants conflate self-affirmation with thinking positively, we also presented them with a “positive reflection” strategy.³ Participants read that this strategy involved thinking positively and telling oneself to “shake it off.” Participants wrote about a time when they were in a difficult situation and tried to think positively. We reasoned that positive thinking would be a strategy that participants may view as effective because of its prevalence in popular media. Moreover, similar strategies (being optimistic) appear to be helpful for coping more generally (Scheier & Carver, 1985).

Next, participants were presented with the same scenarios from Study 1a. For each scenario, participants rated the

usefulness of the values reflection strategy: “To achieve your goal, how helpful do you think it would be for you to use the values reflection strategy? (i.e., to think about [*participant’s selected values*])” (1 = *extremely unhelpful*, 7 = *extremely helpful*). Participants also rated the usefulness of the positive reflection strategy in each scenario: “To achieve your goal, how helpful would it be to tell yourself to “look on the bright side” or to “shake it off?” (1 = *extremely unhelpful*, 7 = *extremely helpful*).

Beliefs assessment (Study 2b: affirming competence in the threatened domain). Study 2b used the same assessment as Study 2a with two exceptions. First, to minimize potential demand effects, Study 2b omitted the introduction and writing prompts for both strategies. Second, Study 2b compared self-affirmation against another strategy: affirming competence in the threatened domain. This strategy can be seen as a more specific version of the “positive reflection” strategy in Study 2a. Previous research and theorizing on self-affirmation suggest that self-affirmation is most effective when people reflect on a source of self-worth that is unrelated to the threatened domain (Blanton et al., 1997).

For each scenario, participants rated the usefulness of engaging in self-affirmation: “To achieve your goal, how helpful would it be for you to think about your **most** important values (e.g., your relationships with your friends and family, art or music, or your religion)?” (1 = *extremely unhelpful*, 7 = *extremely helpful*). Participants also rated the usefulness of the same domain affirmation strategy (1 =

Table 4. Results of the 2 (Scenario: Self-Threat vs. Frustration-Comparison Scenarios) \times 2 (Strategy: Self-Affirmation vs. Alternative Strategy) Repeated Measures ANOVA on Usefulness Ratings for Studies 2a and 2b.

Study	F	df	p	η_p^2	CI	Descriptive statistics			
						Self-threat		Comparison	
						M	SD	M	SD
a) Scenario									
Study 2a	16.952	(1, 85)	< .001	0.166	[0.061, 0.281]	5.028	0.810	4.734	0.916
Study 2b	72.220	(1, 88)	< .001	0.451	[0.321, 0.547]	4.731	0.758	4.107	0.939
						Self-affirmation		Alternative	
						M	SD	M	SD
b) Strategy									
Study 2a	8.546	(1, 85)	0.004	0.091	[0.017, 0.196]	4.742	1.011	5.020	0.801
Study 2b	26.423	(1, 88)	< .001	0.231	[0.112, 0.345]	4.135	0.928	4.704	0.949
c) Scenario \times strategy									
Study 2a	7.129	(1, 85)	0.009	0.077	[0.011, 0.178]				
Study 2b	73.427	(1, 88)	< .001	0.455	[0.326, 0.551]				

Note. Alternative strategies included thinking positively (Study 2a) and affirming competence in the same domain (Study 2b). ANOVA = analysis of variance; CI = confidence interval.

extremely unhelpful, 7 = *extremely helpful*). In a self-threat scenario about receiving threatening health information, the question read, “To achieve your goal, how helpful would it be for you to tell yourself that you are healthy?” In a frustration-comparison scenario about making decisions, the question read, “To achieve your goal, how helpful would it be for you to tell yourself that you are great at making decisions?”

Results

Beliefs about self-affirmation. We submitted participants’ usefulness ratings a 2 (scenario: self-threat, comparison) \times 2 (strategy: values reflection, alternative strategy) repeated measures ANOVA. Both studies revealed the main effects of scenario and strategy and an interaction between the two (see Table 4). Figure 2 depicts the substantial variability in participants’ beliefs as in previous studies.

As in Studies 1a to 1c, we conducted critical simple comparison analyses to examine participants’ context-specific beliefs (see Table 5). We first examined situation differentiation beliefs: Do people think that self-affirmation is more effective for self-threat relative to other situations? Conceptually replicating Studies 1a to 1c, participants on average rated self-affirmation as more helpful in self-threat scenarios than in frustration-comparison scenarios—recognizing *when* self-affirmation would be helpful. By contrast, results revealed no significant differences in alternative strategy ratings for self-threat (vs. frustration-comparison) scenarios. Thus, participants differentiated self-affirmation from alternative strategies, recognizing that self-affirmation is selectively helpful for self-threat compared with other negative situations. Next, we examined comparative efficacy beliefs: Do people think that self-affirmation is more effective

than alternatives in self-threat situations? Results revealed no significant differences in usefulness ratings between self-affirmation and alternative strategies. Thus, participants may believe that many strategies are effective for coping with self-threat, and self-affirmation may not always be the first strategy they use when their self-integrity is threatened.

Discussion

Studies 2a and 2b conceptually replicated Studies 1a to 1c and demonstrated that people’s self-affirmation beliefs are generally consistent with the literature. Studies 2a and 2b offered several novel insights. First, Studies 2a and 2b addressed the potential criticism that Studies 1a to 1c merely revealed people’s beliefs about positive thinking, rather than self-affirmation specifically. When examining situation differentiation beliefs, Studies 2a and 2b revealed that people viewed self-affirmation as a strategy specific for addressing self-threats. By contrast, people viewed alternative strategies (thinking positively, same domain affirmation) as more general strategies for dealing with various negative situations. Thus, people appear to distinguish self-affirmation as a strategy specific for coping with self-threats.

Second, when examining people’s comparative efficacy beliefs, Studies 2a and 2b revealed that people may not see self-affirmation as more helpful than positive thinking and affirming in the threatened domain. This suggests that self-affirmation may not be the only coping strategy that people turn to under self-threat, despite the benefits of self-affirmation for these situations (Cohen & Sherman, 2014). This may lead to situations in which people prefer strategies that the literature suggests are ineffective for mitigating self-threats (same domain affirmation; Blanton et al., 1997).

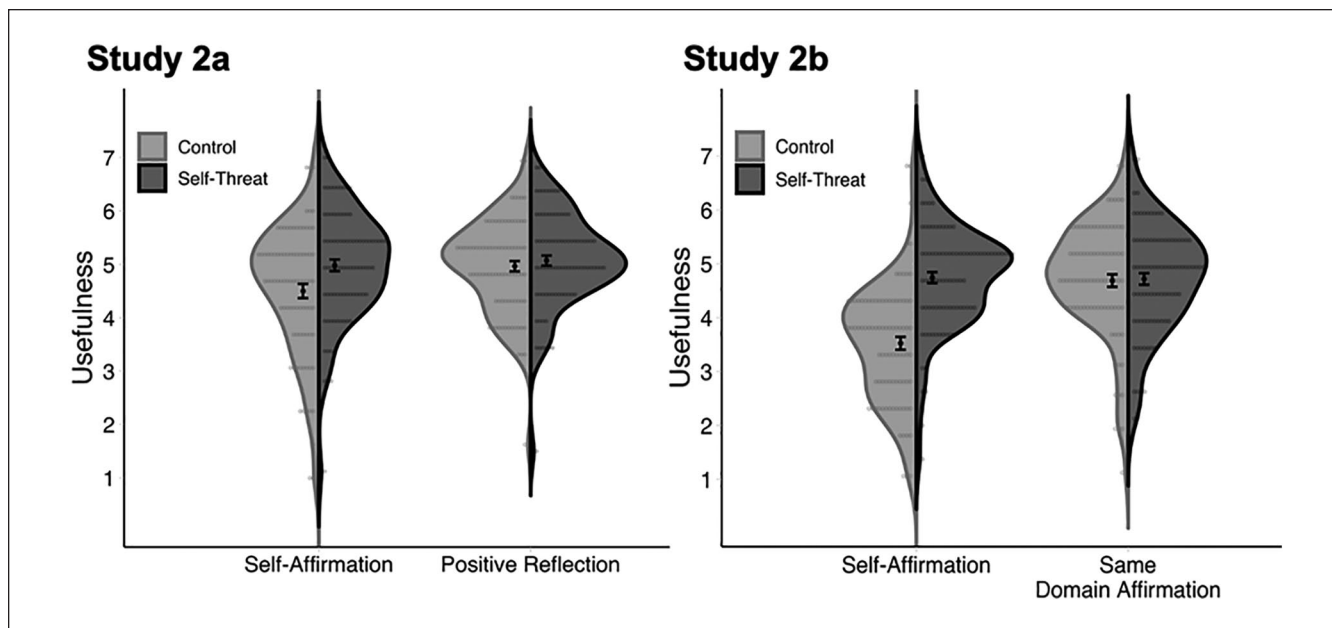


Figure 2. Usefulness ratings as a function of scenario type and strategy type. Note. Studies 2a and 2b included frustration-comparison scenarios. Graph represents split violin plots with density distributions of usefulness ratings for each condition with individual data points (gray dots horizontally stacked within the shaded regions), descriptive means (black dots) and 95% confidence intervals (black error bars).

Table 5. Descriptive Statistics and t-Tests of Usefulness Ratings for Self-Affirmation and Alternative Strategies in Self-Threat and Frustration-Comparison Scenarios for Studies 2a and 2b.

Situation differentiation	Self-threat scenarios		Comparison scenarios		Paired samples t-test
	M	SD	M	SD	
2a: Values Reflection Strategy	4.98	1.02	4.50	1.24	$t(85) = 4.28, p < .001, d = .46, 95\% \text{ CI } [0.24, 0.68]$
2b: Values Reflection Strategy	4.74	0.96	3.52	1.13	$t(88) = 11.66, p < .001, d = 1.24, 95\% \text{ CI } [0.96, 1.51]$

Situation differentiation	Self-threat scenarios		Comparison scenarios		Paired samples t-test
	M	SD	M	SD	
2a: Alternative Strategy	5.07	0.89	4.97	0.90	$t(85) = 1.23, p = .221, d = .13, 95\% \text{ CI } [-0.08, 0.35]$
2b: Alternative Strategy	4.72	1.01	4.69	1.09	$t(88) = 0.32, p = .751, d = .03, 95\% \text{ CI } [-0.17, 0.24]$

Comparative efficacy	Values reflection strategy		Alternative strategy		Paired samples t-test
	M	SD	M	SD	
2a: Self-Threat Scenarios	4.98	1.02	5.07	0.89	$t(85) = 0.82, p = .414, d = .09, 95\% \text{ CI } [-0.30, 0.12]$
2b: Self-Threat Scenarios	4.74	0.96	4.72	1.01	$t(88) = 0.18, p = .859, d = .02, 95\% \text{ CI } [-0.20, 0.23]$

Note. The alternative strategy in Study 2a was positive reflection and the alternative strategy in Study 2b was same-domain self-affirmation. CI = confidence interval.

Third, Study 2b addressed potential concerns of methodological demand effects by omitting the introduction with a description of the strategies and writing prompts prior to the beliefs assessment. A supplemental study described in the SOM (Study S2) also omitted this extensive introduction and

generally replicated Studies 2a and 2b with another alternative strategy (expressing gratitude). Despite this omission, participants across Studies 2b and S2 recognized the benefits of self-affirmation for coping with self-threat. Thus, these results cannot be reduced to demand effects. Finally, Studies

2a and 2b provided some evidence of generalizability, using different samples to examine our research questions.

Thus far, the current research has documented that people on average recognize the benefits of self-affirmation for mitigating self-threat. There was, however, notable individual-level variability in these beliefs. One unanswered question is whether individual differences in these beliefs predict consequential outcomes. As Studies 2a and 2b suggested that people may view self-affirmation as one of many strategies for coping with self-threat, Studies 3a and 3b examined whether individual differences in self-affirmation beliefs predict the choice to engage in self-affirmation over an alternative strategy after an experience of self-threat.

Studies 3a and 3b

Studies 3a and 3b had two major aims. First, to provide a stronger test of people's comparative efficacy beliefs, Studies 3a and 3b used an alternative strategy that research suggests is likely ineffective for coping with self-threat: recounting (reflecting on and analyzing the details of the event). Recounting is associated with negative coping outcomes across several domains (Glynn et al., 2002; Lee et al., 2019) and is ineffective for coping with negative emotional events, such as social rejection (Ayduk & Kross, 2010). Thus, we reasoned that recounting would likely be unhelpful relative to self-affirmation for coping with self-threat.

Second, to begin to examine the downstream consequences of people's beliefs about the benefits of self-affirmation, Studies 3a and 3b adopted a two-part procedure. Part 1 included the beliefs assessment. Part 2 induced self-threat and assessed participants' choices and preferences to engage in self-affirmation versus recounting as a coping strategy. We expected that participants who recognize the benefits of self-affirmation would choose to reflect on their most important values instead of recounting the details of the self-threat experience, thus choosing the option that research suggests will lead to more positive outcomes following self-threat.

Method

Participants. In Study 3a, 201 MTurk workers (125 men, 76 women; 153 White/European American, 15 mixed racial/ethnic identity, 15 Asian American, 10 Black/African American, 5 Hispanic/Latinx, 2 Native American, 1 Middle Eastern; $M_{\text{age}} = 36.26$, $SD_{\text{age}} = 11.12$) participated in exchange for payment. In Study 3b, 199 Prolific workers (100 men, 98 women, 1 non-binary; 123 White, 35 Asian American, 14 mixed racial/ethnic identity, 12 Hispanic/Latinx, 11 Black/African American, 2 Middle Eastern, 2 other racial/ethnic identity; $M_{\text{age}} = 33.55$, $SD_{\text{age}} = 12.62$) participated in exchange for payment.

Part 1: Beliefs assessment. Participants were first introduced to two strategies. Participants read that the "values reflection"

strategy involved reflecting on personally important values that matter most and that the "recounting" strategy involved analyzing and reflecting on the details of the difficult situation. As in Studies 2b and S2, to minimize the potential for demand effects, participants were not presented with practice writing prompts.

Studies 3a and 3b used the same assessment, except for the comparison scenarios (Study 3a: frustration-comparison; Study 3b: pain-comparison). For each scenario, participants rated the helpfulness of engaging in self-affirmation: "To achieve your goal, how helpful would it be for you to use the values reflection strategy? (i.e., to think about your most important values)" (1 = *extremely unhelpful* to 7 = *extremely helpful*). Participants also rated the helpfulness of recounting in each scenario: "To achieve your goal, how helpful would it be for you to use the recounting strategy? (i.e., analyzing and reflecting on the details of the situation)" (1 = *extremely unhelpful* to 7 = *extremely helpful*).

Part 2: Self-threat task. Next, participants read that we were collecting two short writing samples for future research. The first writing prompt was the self-threat task in which participants engaged in a threatening upward social comparison. Research suggests that upward social comparisons can induce self-threat (Tesser & Cornell, 1991), which can be effectively countered with self-affirmation (Lockwood et al., 2004; Spencer et al., 2001). Participants were given the following instructions:

Please write a short story about a recent time in your life when you and someone with whom you are closely associated (such as your friend, relative, or coworker) engaged in some tasks. In this case, it was very important for you personally to do well at the task. As things turn out, your close associate outperformed you. Try to recall the situation as vividly as possible. Try to describe what you were thinking and how you were feeling at the time.

Choice and preferences. Next, for the second writing prompt, the participant read that they could choose one of two topics: the values reflection strategy ("you will reflect on your most important values") or the recounting strategy ("you will further analyze and reflect on the details of the event you just wrote about in which a close associate outperformed you"). To assess choice, we asked participants, "Which of the two strategies would you prefer to use?" (0 = *I prefer to use the recounting strategy*; 1 = *I prefer to use the values reflection strategy*). We also asked participants to rate the strength of their preference (1 = *strongly prefer recounting*, 6 = *strongly prefer values reflection*). By presenting recounting as an alternative option, this paradigm addresses the possibility that people may only choose to self-affirm out of a desire to engage in any activity following self-threat. Afterward, participants read that the study did not require an additional writing sample.⁴ Finally, participants reported their demographics and were debriefed.

Table 6. Results of the 2 (Scenario: self-threat vs. Comparison scenarios) \times 2 (Strategy: self-affirmation vs. Recounting) Repeated Measures ANOVA on Usefulness Ratings for Studies 3a and 3b.

Study	F	df	p	η_p^2	CI	Descriptive statistics			
						Self-threat		Comparison	
						M	SD	M	SD
a) Scenario									
Study 3a	161.179	(1, 197)	< .001	0.450	[0.367, 0.518]	5.084	0.674	4.535	0.636
Study 3b	123.211	(1, 171)	< .001	0.419	[0.327, 0.494]	5.353	0.733	4.744	0.967
						Self-affirmation		Recounting	
						M	SD	M	SD
b) Strategy									
Study 3a	169.396	(1, 197)	< .001	0.462	[0.380, 0.530]	4.301	0.837	5.318	0.760
Study 3b	64.597	(1, 171)	< .001	0.274	[0.183, 0.358]	4.689	1.067	5.408	0.873
c) Scenario \times strategy									
Study 3a	263.981	(1, 197)	< .001	0.573	[0.500, 0.629]				
Study 3b	134.831	(1, 171)	< .001	0.441	[0.350, 0.514]				

Note. Study 3a included frustration-comparison scenarios whereas Studies 3b included pain-comparison scenarios. ANOVA = analysis of variance; CI = confidence interval.

Results

Study 3b was a pre-registered replication of Study 3a (see analysis plan for Study 3b: https://osf.io/jcrsw/?view_only=974a9da629434943944ff7434639a44b). For transparency, there was one deviation from this plan: although we only pre-registered analyses with comparative efficacy beliefs, we also examined situation differentiation beliefs (see SOM).

Beliefs about self-affirmation. We submitted participants' usefulness ratings to a 2 (scenario: self-threat, comparison) \times 2 (strategy: self-affirmation, recounting) repeated measures ANOVA. Both studies revealed main effects of scenario and strategy and interaction between the two (see Table 6). Figure 3 revealed considerable variability in these beliefs.

As in previous studies, we conducted critical simple comparison analyses to examine participants' context-specific beliefs (see Table 7). We first examined situation differentiation beliefs. Replicating the previous studies, participants on average rated self-affirmation as more helpful in the self-threat scenarios (vs. frustration-/pain-comparison scenarios)—recognizing *when* self-affirmation would be helpful. By contrast, participants rated recounting as more helpful in the frustration-/pain-comparison scenarios (vs. self-threat scenarios). Thus, participants distinguished self-affirmation from alternative strategies—that is, participants recognized that self-affirmation is selectively helpful in self-threat situations. Next, we examined comparative efficacy beliefs. Consistent with Studies 2a and 2b, results revealed no significant differences in ratings of self-affirmation and recounting in self-threat scenarios. This suggests that people may consider both self-affirmation and recounting as viable strategies for coping with self-threat.

Choice to self-affirm after self-threat. Next, we examined whether individual differences in beliefs about self-affirmation predicted the choice to engage in self-affirmation (over recounting) after self-threat. Although both comparative efficacy beliefs and situation differentiation beliefs reflect an understanding of the benefits of self-affirmation, we reasoned that the choice presented to participants is more relevant for comparative efficacy beliefs (what strategy does one choose when faced with self-threat?) than situation differentiation beliefs (how effective is self-affirmation in self-threat vs. non-threat situations?). Thus, we focus on comparative efficacy beliefs (i.e., usefulness ratings of self-affirmation vs. recounting in self-threat scenarios); in the SOM, we describe results for situation differentiation beliefs (i.e., usefulness of self-affirmation in self-threat vs. comparison scenarios). The SOM also describes analyses for both types of beliefs using a difference score approach. Importantly, results were generally consistent across both types of beliefs and analysis approaches.

Choice. To examine whether comparative efficacy beliefs predicted coping decisions after self-threat, we regressed choice (0 = *recounting*, 1 = *self-affirmation*) on the usefulness of values reflection in self-threat scenarios (standardized) and the usefulness of recounting in self-threat scenarios (standardized). In Study 3a, participants' perceived usefulness of values reflection predicted the choice to self-affirm over recount following the self-threatening writing task (see Table 8). Importantly, this result emerged even when controlling for the usefulness of recounting. In Study 3b, the usefulness of values reflection did not predict choice; instead, the usefulness of recounting negatively predicted choice. An integrative data analysis combining Studies 3a and 3b,

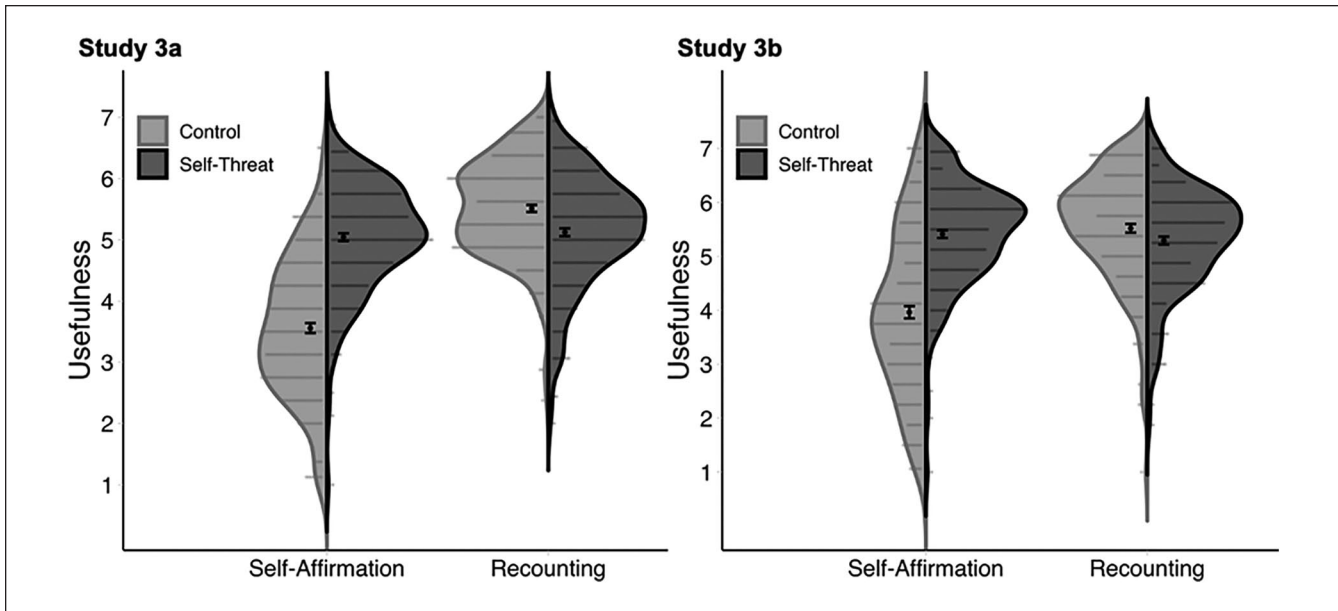


Figure 3. Usefulness ratings as a function of scenario type and strategy type. Note. Study 3a included frustration-comparison scenarios whereas Studies 3b included pain-comparison scenarios. Graph represents split violin plots with density distributions of usefulness ratings for each condition with individual data points (gray dots horizontally stacked within the shaded regions), descriptive means (black dots) and 95% confidence intervals (black error bars).

Table 7. Descriptive Statistics and t-Tests of Usefulness Ratings for Self-Affirmation and Recounting in Self-Threat and Comparison Scenarios for Studies 3a and 3b.

Situation differentiation	Self-threat scenarios		Comparison scenarios		Paired-samples t test
	M	SD	M	SD	
3a: Values Reflection Strategy	5.04	0.89	3.56	1.14	$t(197) = 17.88, p < .001, d = 1.27, 95\% \text{ CI } [1.08, 1.46]$
3b: Values Reflection Strategy	5.41	0.96	3.96	1.50	$t(171) = 14.18, p < .001, d = 1.08, 95\% \text{ CI } [0.89, 1.27]$
Situation differentiation	Self-threat scenarios		Comparison scenarios		Paired-samples t test
	M	SD	M	SD	
3a: Recounting Strategy	5.12	0.93	5.51	0.80	$t(197) = 6.58, p < .001, d = .47, 95\% \text{ CI } [0.32, 0.61]$
3b: Recounting Strategy	5.29	0.96	5.52	1.06	$t(171) = 2.96, p = .004, d = .23, 95\% \text{ CI } [0.07, 0.38]$
Comparative efficacy	Values reflection strategy		Recounting strategy		Paired-samples t test
	M	SD	M	SD	
3a: Self-Threat Scenarios	5.04	0.89	5.12	0.93	$t(197) = 0.93, p = .353, d = .07, 95\% \text{ CI } [-0.07, 0.21]$
3b: Self-Threat Scenarios	5.41	0.96	5.29	0.96	$t(171) = 1.27, p = .205, d = .10, 95\% \text{ CI } [-0.05, 0.25]$

Note. Study 3a included frustration-comparison scenarios whereas Studies 3b included pain-comparison scenarios. CI = confidence interval.

however, revealed that the usefulness of values reflection predicted choice: Those with higher usefulness ratings for values reflection (+1 SD above the mean) were 31% more likely to choose self-affirmation over recounting after self-threat. Study moderated this effect such that it was significant in Study 3a and not 3b. Moreover, the usefulness of

recounting negatively predicted choice: Those with higher usefulness ratings for recounting (+1 SD above the mean) were 27% less likely to choose self-affirmation over recounting after self-threat. Overall, these results demonstrate that people’s beliefs about the usefulness of self-affirmation predict their coping decisions after self-threat and competing

Table 8. Predicting Choice From Comparative Efficacy Beliefs for Studies 3a and 3b.

Predictor	<i>b</i>	<i>SE</i>	<i>Wald</i>	<i>p</i>	OR	95% CI
Study 3a						
Intercept	0.12	0.15	0.69	.407	1.13	
Usefulness of values reflection in self-threat scenarios	0.50	0.16	9.39	.002	1.65	[1.20, 2.28]
Usefulness of recounting in self-threat scenarios	-0.26	0.15	2.85	.091	0.77	[0.57, 1.04]
Study 3b						
Intercept	-0.19	0.16	1.48	.224	0.83	
Usefulness of values reflection in self-threat scenarios	0.00	0.16	0.00	.980	1.00	[0.73, 1.38]
Usefulness of recounting in self-threat scenarios	-0.37	0.16	5.01	.025	0.69	[0.50, 0.96]
Studies 3a and 3b						
Intercept	0.02	0.11	0.04	.85	1.02	
Usefulness of values reflection in self-threat scenarios	0.27	0.12	5.25	.022	1.31	[1.04, 1.64]
Usefulness of recounting in self-threat scenarios	-0.31	0.11	7.74	.005	0.73	[0.59, 0.91]
Study (-0.5 = Study 3a, 0.5 = Study 3b)	-0.35	0.22	2.61	.106	0.7	[0.46, 1.08]
Study × Usefulness of values reflection	-0.53	0.23	5.1	.024	0.59	[0.37, 0.93]
Study × Usefulness of recounting	-0.10	0.22	0.18	.669	0.91	[0.59, 1.41]

Note. This table displays results from Study 3a, Study 3b, and both studies combined. The nonsignificant intercepts reflect a lack of significant difference in the choice between recounting and self-affirmation on average (Study 3a: 47.0% recounting, 53.0% self-affirmation; Study 3b: 54.7% recounting, 45.3% self-affirmation; Studies 3a and 3b: 50.5% recounting, 49.5% self-affirmation). OR = odds ratio; CI = confidence interval.

beliefs about alternative strategies may impact people's decisions as well.

Preferences. Next, we regressed the strength of preferences (1 = *strongly prefer recounting*, 6 = *strongly prefer values reflection*) on the usefulness of values reflection in self-threat scenarios (standardized) and the usefulness of recounting in self-threat scenarios (standardized). As expected, participants' perceived usefulness of values reflection predicted the strength of their preferences for self-affirmation, controlling for the usefulness of recounting (see Table 9). This effect was significant in Study 3a, Study 3b, and in the integrative data analysis of Studies 3a and 3b. Those with higher usefulness ratings of values reflection (+1 *SD* above the mean) reported stronger preferences to engage in self-affirmation over recounting after the self-threatening writing task. The usefulness of recounting also predicted preferences: those with higher usefulness ratings of recounting (+1 *SD* above the mean) reported stronger preferences to engage in recounting over self-affirmation after self-threat. This effect was significant in Study 3a and the integrative data analysis of Studies 3a and 3b. Overall, these findings demonstrate that participants' beliefs about the efficacy of self-affirmation (and beliefs about competing strategies) guide their coping preferences after self-threat.

Discussion

Studies 3a and 3b demonstrated that people on average recognize the benefits of self-affirmation. A supplemental study (Study S3; see SOM) replicated this pattern of beliefs, suggesting these results are robust. Collectively, these studies offered several insights. First, consistent with

the previous experiments, people on average recognized that self-affirmation would be more helpful for self-threat relative to other negative situations. By contrast, people believed that recounting would be less helpful for self-threat compared to other negative situations. Thus, people appear to view self-affirmation as a strategy that is selectively helpful for self-threat situations. Second, despite research documenting the pitfalls of recounting as a coping strategy (Ayduk & Kross, 2010), people on average did not recognize that self-affirmation would be more helpful than recounting in self-threat situations. Consistent with previous studies, people appeared to believe that many strategies are effective for coping with self-threat, suggesting that self-affirmation may not be the first they turn to in self-threat situations.

Third, Studies 3a and 3b revealed that individual differences in self-affirmation beliefs predicted coping decisions after experiencing self-threat. Specifically, beliefs about the usefulness of self-affirmation predicted choices and preferences for self-affirmation over recounting following a threatening social comparison task. Although people on average did not appear to recognize the efficacy of self-affirmation compared to recounting in self-threat situations, those who did were more likely to make coping decisions that the literature suggests would be more effective. Individual differences in such beliefs may thus have important implications for how people strategically cope with self-threat experiences.

These beliefs may also impact the effectiveness of self-affirmation interventions in which people are not told when and how to self-affirm, but rather must recognize when it is beneficial to do so. We conducted another study (Study S3—see SOM) wherein all participants were explicitly instructed to engage in a values-affirmation exercise after self-threat. In

Table 9. Predicting Preferences From Comparative Efficacy Beliefs for Studies 3a and 3b.

Predictor	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	95% CI
Study 3a					
Intercept	3.76	0.10	37.86	< .001	[3.57, 3.96]
Usefulness of values reflection in self-threat scenarios	0.48	0.10	4.82	< .001	[0.28, 0.68]
Usefulness of recounting in self-threat scenarios	-0.21	0.10	-2.12	.036	[-0.41, -0.01]
Study 3b					
Intercept	3.73	0.11	32.87	< .001	[3.50, 3.95]
Usefulness of values reflection in self-threat scenarios	0.39	0.12	3.41	.001	[0.17, 0.62]
Usefulness of recounting in self-threat scenarios	-0.13	0.12	-1.13	.261	[-0.36, 0.10]
Studies 3a and 3b					
Intercept	3.75	0.08	48.86	< .001	[3.60, 3.90]
Usefulness of values reflection in self-threat scenarios	0.45	0.08	5.80	< .001	[0.30, 0.60]
Usefulness of recounting in self-threat scenarios	-0.17	0.08	-2.26	.024	[-0.32, -0.02]
Study (-0.5 = Study 3a, 0.5 = Study 3b)	-0.18	0.15	-1.17	.241	[-0.48, 0.12]
Study × Usefulness of values reflection	-0.13	0.15	-0.83	.408	[-0.43, 0.18]
Study × Usefulness of recounting	0.09	0.15	0.58	.562	[-0.21, 0.39]

Note. This table displays results from Study 3a, Study 3b, and both studies combined. CI = confidence interval.

this no-choice situation, all participants, regardless of beliefs, reported high engagement in self-affirmation. Thus, such beliefs may matter most when people have autonomy to choose to self-affirm or not, as in Studies 3a and 3b.

General Discussion

This work examined people's self-affirmation beliefs and whether these beliefs predicted downstream consequences—namely, coping with threat. Across studies, people recognized that self-affirmation is more helpful for self-threat than in other negative nonthreat situations. Thus, people appeared to distinguish self-affirmation as a regulatory, specialized response to threats to their self-integrity, not just any negative situation. When presented with other strategies, however, people on average did not appear to believe that self-affirmation is more effective than alternatives: thinking positively (Study 2a), affirming in the threatened domain (Study 2b), and recounting the details of the self-threat (Studies 3a and 3b). There was one exception: people believed that affirming their most (vs. least) important values would be more helpful in self-threat situations (Studies 1a–1c). In general, however, people appear to believe that many strategies are effective for coping with self-threat, and self-affirmation may not be the first strategy of choice.

These effects were quite robust (see SOM for three additional studies). Results held across different samples (MTurk workers, undergraduates, Prolific workers), alternative strategies (affirming least important values, thinking positively, same domain affirmation, recounting), and comparison scenarios (managing frustrations, physical pain). Moreover, our results cannot be reduced to demand effects potentially created by the assessment's instructions.

Critically, variability in beliefs shaped important downstream consequences. People who recognized that self-affirmation is helpful preferred to self-affirm rather than recount after engaging in a self-threatening writing task involving upward social comparison. Thus, individual differences in such beliefs may guide how people respond to and cope with self-threat—demonstrating the importance of understanding what people know about self-affirmation.

Theoretical Contributions and Practical Implications

This work offers several novel theoretical contributions and practical implications. First, these findings advance self-affirmation theory: This research is the first to document people's beliefs about the benefits of self-affirmation. Although people appreciate that self-affirmation can reduce self-threat, they also believe that several other alternatives may be equally, if not more, efficacious. Moreover, consistent with a regulatory approach, this work suggests that individual differences in such beliefs can shape impactful decisions, such as how people decide to cope with self-threat. Thus, this work reveals important nuances in what people know about self-affirmation—highlighting an unexplored factor that may be targeted to promote effective coping.

Second, this work provides the first evidence that people understand the benefits of self-affirmation for coping specifically with self-threat and not just any negative situation. In addition, it suggests why some individuals might not engage in self-affirmation to mitigate self-threat—that is, they may believe that other strategies are better. These novel insights cannot be gleaned from the trait approach used to examine spontaneous self-affirmation tendencies (Harris et al., 2019). Thus, this research provides the first suggestive

evidence that spontaneous self-affirmation may reflect a self-regulatory response to self-threat driven by situation-specific beliefs about the benefits of self-affirmation.

Third, this work suggests that people's self-affirmation beliefs may be an important antecedent to developing spontaneous self-affirmation. Our analysis echoes and extends the cognitive affective personality system (CAPS) approach to understanding individual differences (Mischel & Shoda, 1995) and connects this venerable tradition to self-affirmation research. By understanding the cognitive-affective basis of behavior—in this case, self-affirmation beliefs—we may better understand resilience in the face of self-threat.

Fourth, this research is the first to apply the metamotivational approach to self-affirmation theory. This work demonstrates that people recognize that self-threat necessitates motivation regulation and appreciate that self-affirmation is one way to address the negative motivational states associated with self-threat. Importantly, by connecting individual differences in people's metamotivational beliefs about self-affirmation to important downstream consequences, this research offers novel explanations of how people overcome motivational challenges, such as responding to threats to their self-integrity.

This research contributes to ongoing efforts to understand when and why self-affirmation interventions are effective (Easterbrook et al., 2021). This work revealed that people's beliefs guide whether they may self-affirm in response to self-threat, suggesting that self-affirmation beliefs may be a critical, yet unexplored aspect of successful interventions. The beliefs assessment could be used early in an intervention to assess intervention efficacy, especially those designed to “train” people on *when* and *how* to use self-affirmation in their daily lives (Walton et al., 2015). This is critical, as intervention outcomes can extend several years beyond the initial point of intervention. This work offers a potential diagnostic tool that may address some limitations of self-affirmation interventions and provides a novel explanation for the variability in intervention effectiveness.

The current research, moreover, highlights two novel types of beliefs that interventions may target. First, it may be critical for interventions to distinguish self-affirmation from ineffective strategies that may be seen as helpful (e.g., recounting the details of a self-threat). Indeed, Studies 3a and 3b demonstrated that those who believe that recounting is more helpful than self-affirmation did not choose to engage in self-affirmation after self-threat. Because misbeliefs about highly salient yet ineffective alternative strategies may undermine self-affirmation interventions, interventions may also have to address such misbeliefs. Second, this work also suggests that interventions should teach people how to distinguish experiences of self-threat from other negative situations. Doing so may not only promote the likelihood of enacting self-affirmation but also doing so at the right time.

In creating such interventions, researchers must consider *how* people develop self-affirmation beliefs. Future work

may examine whether people learn best through didactic teaching or experience; the latter may be more likely, as beliefs are posited to be relatively tacit. Indeed, earlier self-affirmation research suggests that explicitly telling participants about the link between self-affirmation and self-threat can undermine the benefits of self-affirmation (Sherman et al., 2009)—although such didactic instruction may be counterproductive insofar as people feel forced to self-affirm (Silverman et al., 2013). Future research should test the effectiveness of didactic versus experiential interventions for promoting self-affirmation beliefs.

Limitations and Next Steps

There are some notable limitations. First, this work did not examine outcomes often associated with self-affirmation (reduced defensiveness, higher grades). Moving forward, it is important to address this issue. Self-affirmation beliefs, however, may be one of many necessary antecedents for successful motivation regulation in the face of threat. Another antecedent may be recognizing when one is experiencing self-threat (i.e., self-knowledge; Scholer & Miele, 2016). Although this research suggests that people can detect self-threat in hypothetical scenarios, this process may be complicated when immersed in self-threat. Future research should examine whether people attribute their experiences of self-threat to self-relevant or self-irrelevant sources. For example, a patient receiving threatening health results may attribute feelings of threat to a decrease in their self-integrity or to the discomfort of being in a doctor's office. These attributions may guide whether self-affirmation beliefs shape coping decisions.

Additional antecedents include having the motivation and opportunity to implement one's beliefs (Nguyen et al., 2019). Future work might also assess perceptions of how easy it is to engage in self-affirmation compared with alternative strategies. A student who receives negative feedback on an essay may feel like it would be easier to “shake off” this threat (by binge-watching a mindless show) than to engage in self-affirmation (to reflect on their important values), even if they think the latter is more useful for coping. Such perceptions may therefore impact whether people's beliefs guide them to self-affirm in the face of self-threat, determining when and why their metamotivational beliefs translate to better or worse outcomes.

Second, the beliefs assessment may be characterized as domain-general, as it included scenarios about several types of self-threat. Future work may develop domain-specific assessments that focus on one type of self-threat (e.g., stereotype threat, threatening health information). Such assessments may be more effective at predicting specific outcomes typically associated with self-affirmation.

In addition, the present research asked participants to consider the usefulness of self-affirmation for self-threats that have already occurred. Previous work suggests that

self-affirmation interventions may be most beneficial *before* self-threat (Critcher et al., 2010)—although past research also demonstrates that self-affirmation can be still effective even after self-threats have already occurred (Brady et al., 2016). Nevertheless, future research should examine people's beliefs about the usefulness of self-affirmation for anticipating self-threats (e.g., expecting negative feedback at work or awaiting disappointing health results), as it may enhance predictive precision when examining the consequences of such beliefs.

Another limitation that one might raise concerns the efficacy of alternative strategies. There is relatively less research on ineffective coping strategies for self-threat, rendering it difficult to identify strategies to compare against self-affirmation. Based on theory and research from related domains, we selected alternative strategies that one might expect would be unhelpful for coping with self-threat—though we acknowledge cases in which such strategies may be helpful for certain individuals. Results were generally consistent across studies, suggesting that our findings did not depend on a specific alternative strategy. Thus, although there may be unique disadvantages associated with each of the alternative strategies, the evidence for our conclusions was robust. Nevertheless, future research may compare self-affirmation to general coping strategies typically used in response to stress (e.g., planning, seeking social support, venting, disengaging; Carver et al., 1989).

The present research is largely silent on how people develop and acquire beliefs about self-affirmation. It is possible these beliefs arise from trial-and-error learning and experience. If so, those who have had to overcome substantial challenges may have greater knowledge about the types of coping that will sustain goal pursuit. Alternatively, perhaps people acquire this knowledge from others. Parents may, for example, teach children to respond to self-threats by elaborating on values. Similarly, cultural practices may provide guidance on how best to cope. Understanding the formation of these beliefs is an important future direction.

This research only recruited participants from the United States—a WEIRD population (Western, Educated, Industrialized, Rich, Democratic; Henrich et al., 2010). Whether the present findings would generalize to non-WEIRD samples remains unknown. Questions of cross-cultural generalizability may be particularly relevant, given that previous research suggests that standard self-affirmation exercises may be less effective among Easterners (Hoshino-Browne et al., 2005). Interdependent forms of self-affirmation—which focus on important values shared with loved ones—may be more beneficial for Easterners than independent forms of self-affirmation—which focus on personally important values. Future research may examine beliefs about different forms of self-affirmation across Eastern and Western cultures and across different subcultures within the United States (lower vs. higher social classes; Stephens et al., 2012).

Another potential limitation is that we did not link metamotivational beliefs about self-affirmation to other beliefs people may have. Future research may examine whether such beliefs are related to metamotivational beliefs documented in other regulatory domains, such as construal level (MacGregor et al., 2017) and regulatory focus (Scholer & Miele, 2016). Perhaps those who recognize the benefits of self-affirmation for coping with self-threat also recognize the benefits of other motivational strategies in different situations. Alternatively, these various beliefs may be situation-specific (Mischel & Shoda, 1995) and may not reflect a broader individual difference in metamotivation. This question is worthy of future research and may inform how people develop such beliefs.

Conclusion

Psychologists have proposed self-affirmation as a solution for addressing ubiquitous self-threats. Applying a metamotivational approach to self-affirmation, this work examined people's beliefs about the benefits of self-affirmation for mitigating self-threat and demonstrated that individual differences in these beliefs predicted adaptive coping decisions following self-threat. This research provides new insights not only into motivational theories but also into approaches that empower individuals to take an active role in maintaining self-integrity in the face of threat.

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Data Accessibility

All deidentified data, materials, syntax, and dataset codebooks are available on OSF (https://osf.io/qanp7/?view_only=c74c322f50e64)

be581f28354078c52ed). Free response data can be made available upon request and by IRB approval. Study 3b was a pre-registered replication of Study 3a (https://osf.io/jcrsw/?view_only=974a9da629434943944ff7434639a44b).

Supplemental Material

Supplemental material is available online with this article.

Notes

1. Since this is the first examination of people's self-affirmation beliefs, we used the operationalization with the most empirical support—values affirmation. Future research should examine beliefs about other forms of self-affirmation.
2. We report the main effects and interactions for transparency and consistency. The interaction is not a test of our primary research questions, as its significance is impacted by a theory-irrelevant simple effect (usefulness of self-affirmation compared to the alternative strategy within the comparison scenarios). We focus instead on the three relevant simple effects.
3. The presentation order of the values reflection strategy and positive reflection strategy was counterbalanced. Order did not influence the results in this study or subsequent studies and will not be discussed further.
4. Because our primary outcomes were choice and preferences, we did not assess additional self-threat outcomes (self-esteem, self-integrity). Self-affirmation beliefs may be one of many factors that promote self-threat recovery, which may depend on various conditions (opportunity to implement beliefs, ease of self-affirming, threat detection). We elaborate on these future directions in the General Discussion.

References

- Ayduk, Ö., & Kross, E. (2010). From a distance: Implications of spontaneous self-distancing for adaptive self-reflection. *Journal of Personality and Social Psychology, 98*(5), 809–829.
- Bender, D. (2015). *Establishing a human baseline for the Winograd Schema Challenge*. MAICS.
- Blanton, H., Cooper, J., Silkurnik, I., & Aronson, J. (1997). When bad things happen to good feedback: Exacerbating the need for self-justification with self-affirmations. *Personality and Social Psychology Bulletin, 23*(7), 684–692.
- Brady, S. T., Reeves, S. L., Garcia, J., Purdie-Vaughns, V., Cook, J. E., Taborsky-Barba, S., Tomasetti, S., Davis, E. M., & Cohen, G. L. (2016). The psychology of the affirmed learner: Spontaneous self-affirmation in the face of stress. *Journal of Educational Psychology, 108*(3), 353–373.
- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*(2), 267–283.
- Cohen, G. L., Garcia, J., Purdie-Vaughns, V., Apfel, N., & Brzustoski, P. (2009). Recursive processes in self-affirmation: Intervening to close the minority achievement gap. *Science, 324*(5925), 400–403.
- Cohen, G. L., & Sherman, D. K. (2014). The psychology of change: Self-affirmation and social psychological intervention. *Annual Review of Psychology, 65*(1), 333–371.
- Correll, J., Spencer, S. J., & Zanna, M. P. (2004). An affirmed self and an open mind: Self-affirmation and sensitivity to argument strength. *Journal of Experimental Social Psychology, 40*(3), 350–356.
- Creswell, J. D., Welch, W. T., Taylor, S. E., Sherman, D. K., Gruenewald, T. L., & Mann, T. (2005). Affirmation of personal values buffers neuroendocrine and psychological stress responses. *Psychological Science, 16*(11), 846–851.
- Critcher, C. R., Dunning, D., & Armor, D. A. (2010). When self-affirmations reduce defensiveness: Timing is key. *Personality and Social Psychology Bulletin, 36*(7), 947–959.
- Crocker, J., Niiya, Y., & Mischkowski, D. (2008). Why does writing about important values reduce defensiveness? Self-affirmation and the role of positive other-directed feelings. *Psychological Science, 19*(7), 740–747.
- Dee, T. S. (2015). Social identity and achievement gaps: Evidence from an affirmation intervention. *Journal of Research on Educational Effectiveness, 8*(2), 149–168.
- Easterbrook, M. J., Harris, P. R., & Sherman, D. K. (2021). Self-affirmation theory in educational contexts. *Journal of Social Issues, 77*(3), 683–701.
- Emanuel, A. S., Howell, J. L., Taber, J. M., Ferrer, R. A., Klein, W. M., & Harris, P. R. (2018). Spontaneous self-affirmation is associated with psychological well-being: Evidence from a US national adult survey sample. *Journal of Health Psychology, 23*(1), 95–102.
- Epton, T., & Harris, P. R. (2008). Self-affirmation promotes health behavior change. *Health Psychology, 27*(6), 746–752.
- Fein, S., & Spencer, S. J. (1997). Prejudice as self-image maintenance: Affirming the self through derogating others. *Journal of Personality and Social Psychology, 73*(1), 31–44.
- Fujita, K., Scholer, A. A., Miele, D. B., & Nguyen, T. (2019). On metamotivation: Consumers' knowledge about the role of construal level in enhancing task performance. *Journal of the Association for Consumer Research, 4*(1), 57–64.
- Glynn, L. M., Christenfeld, N., & Gerin, W. (2002). The role of rumination in recovery from reactivity: Cardiovascular consequences of emotional states. *Psychosomatic Medicine, 64*(5), 714–726.
- Goyer, J. P., Garcia, J., Purdie-Vaughns, V., Binning, K. R., Cook, J. E., Reeves, S. L., Apfel, N., Taborsky-Barba, S., Sherman, D. K., & Cohen, G. L. (2017). Self-affirmation facilitates minority middle schoolers' progress along college trajectories. *Proceedings of the National Academy of Sciences, 114*(29), 7594–7599.
- Hanselman, P., Rozek, C. S., Grigg, J., & Borman, G. D. (2017). New evidence on self-affirmation effects and theorized sources of heterogeneity from large-scale replications. *Journal of Educational Psychology, 109*(3), 405–424.
- Harris, P. R., Griffin, D. W., Napper, L. E., Bond, R., Schütz, B., Stride, C., & Brearley, I. (2019). Individual differences in self-affirmation: Distinguishing self-affirmation from positive self-regard. *Self and Identity, 18*(6), 589–630.
- Heider, F. (1958). *The psychology of interpersonal relations*. Wiley.
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences, 33*(2-3), 61–83.
- Hoshino-Browne, E., Zanna, A. S., Spencer, S. J., Zanna, M. P., Kitayama, S., & Lackenbauer, S. (2005). On the cultural guises of cognitive dissonance: The case of Easterners and Westerners. *Journal of Personality and Social Psychology, 89*(3), 294–310.
- Lee, D. S., Orvell, A., Briskin, J., Shrapnell, T., Gelman, S. A., Ayduk, O., Ybarra, O., & Kross, E. (2019). When chatting about

- negative experiences helps—And when it hurts: Distinguishing adaptive versus maladaptive social support in computer-mediated communication. *Emotion*, 20(3), 368–375.
- Lockwood, P., Dolderman, D., Sadler, P., & Gerchak, E. (2004). Feeling better about doing worse: Social comparisons within romantic relationships. *Journal of Personality and Social Psychology*, 87(1), 80–95.
- MacGregor, K. E., Carnevale, J. J., Dusthimer, N. E., & Fujita, K. (2017). Knowledge of the self-control benefits of high-level versus low-level construal. *Journal of Personality and Social Psychology*, 112(4), 607–620.
- Miele, D. B., Scholer, A. A., & Fujita, K. (2020). Metamotivation: Emerging research on the regulation of motivational states. In A. Elliot (Ed.), *Advances in motivation science* (Vol. 7, pp. 1–42). Elsevier.
- Mischel, W., & Shoda, Y. (1995). A cognitive-affective system theory of personality: Reconceptualizing situations, dispositions, dynamics, and invariance in personality structure. *Psychological Review*, 102(2), 246–268.
- Molden, D. C., & Dweck, C. S. (2006). Finding “meaning” in psychology: A lay theories approach to self-regulation, social perception, and social development. *American Psychologist*, 61(3), 192–203.
- Moss, A., & Litman, L. (2018). *After the bot scare: Understanding what's been happening with data collection on MTurk and how to stop it*. <https://www.cloudresearch.com/resources/blog/after-the-bot-scare-understanding-whats-been-happening-with-data-collection-on-mturk-and-how-to-stop-it/>
- Nguyen, T., Carnevale, J. J., Scholer, A. A., Miele, D. B., & Fujita, K. (2019). Metamotivational knowledge of the role of high-level and low-level construal in goal-relevant task performance. *Journal of Personality and Social Psychology*, 117(5), 876–899.
- Nguyen, T., Scholer, A. A., Miele, D. B., Edwards, M. C., & Fujita, K. (in press). Predicting academic performance with an assessment of students' knowledge of the benefits of high-level and low-level construal. *Social Psychological and Personality Science*.
- Persoskie, A., Ferrer, R. A., Taber, J. M., Klein, W. M. P., Parascandola, M., & Harris, P. R. (2015). Smoke-free air laws and quit attempts: Evidence for a moderating role of spontaneous self-affirmation. *Social Science & Medicine*, 141, 46–55.
- Protzko, J., & Aronson, J. (2016). Context moderates affirmation effects on the ethnic achievement gap. *Social Psychological and Personality Science*, 7(6), 500–507.
- Ross, M. (1989). Relation of implicit theories to the construction of personal histories. *Psychological Review*, 96(2), 341–357.
- Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology*, 4(3), 219–247.
- Scholer, A. A., & Miele, D. B. (2016). The role of metamotivation in creating task-motivation fit. *Motivation Science*, 2(3), 171–197.
- Scholer, A. A., Miele, D. B., Murayama, K., & Fujita, K. (2018). New directions in self-regulation: The role of metamotivational beliefs. *Current Directions in Psychological Science*, 27(6), 437–442.
- Sherman, D. K., & Cohen, G. L. (2006). The psychology of self-defense: Self-affirmation theory. *Advances in Experimental Social Psychology*, 38, 183–242.
- Sherman, D. K., Cohen, G. L., Nelson, L. D., David, A., Bunyan, D. P., & Garcia, J. (2009). Affirmed yet unaware: Exploring the role of awareness in the process of self-affirmation. *Journal of Personality and Social Psychology*, 97(5), 745–764.
- Sherman, D. K., Hartson, K. A., Binning, K. R., Purdie-Vaughns, V., Garcia, J., Taborsky-Barba, S., Tomassetti, S., Nussbaum, A. D., & Cohen, G. L. (2013). Deflecting the trajectory and changing the narrative: How self-affirmation affects academic performance and motivation under identity threat. *Journal of Personality and Social Psychology*, 104(4), 591–618.
- Sherman, D. K., Nelson, L. D., & Steele, C. M. (2000). Do messages about health risks threaten the self? Increasing the acceptance of threatening health messages via self-affirmation. *Personality and Social Psychology Bulletin*, 26(9), 1046–1058.
- Silverman, A., Logel, C., & Cohen, G. L. (2013). Self-affirmation as a deliberate coping strategy: The moderating role of choice. *Journal of Experimental Social Psychology*, 49(1), 93–98.
- Spencer, S. J., Fein, S., & Lomore, C. D. (2001). Maintaining one's self-image vis-à-vis others: The role of self-affirmation in the social evaluation of the self. *Motivation and Emotion*, 25(1), 41–65.
- Steele, C. M. (1988). The psychology of self-affirmation: Sustaining the integrity of the self. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 21, pp. 261–302). Academic Press.
- Steele, C. M., & Liu, T. J. (1983). Dissonance processes as self-affirmation. *Journal of Personality and Social Psychology*, 45(1), 5–19.
- Stephens, N. M., Townsend, S. S. M., Markus, H. R., & Phillips, L. T. (2012). A cultural mismatch: Independent cultural norms produce greater increases in cortisol and more negative emotions among first-generation college students. *Journal of Experimental Social Psychology*, 48(6), 1389–1393.
- Taber, J. M., Klein, W. M. P., Ferrer, R. A., Kent, E. E., & Harris, P. R. (2016). Optimism and spontaneous self-affirmation are associated with lower likelihood of cognitive impairment and greater positive affect among cancer survivors. *Annals of Behavioral Medicine*, 50(2), 198–209.
- Tesser, A., & Cornell, D. P. (1991). On the confluence of self processes. *Journal of Experimental Social Psychology*, 27(6), 501–526.
- Wagner, R. K., & Sternberg, R. J. (1985). Practical intelligence in real-world pursuits: The role of tacit knowledge. *Journal of Personality and Social Psychology*, 49(2), 436–458.
- Walton, G. M., Logel, C., Peach, J. M., Spencer, S. J., & Zanna, M. P. (2015). Two brief interventions to mitigate a “chilly climate” transform women's experience, relationships, and achievement in engineering. *Journal of Educational Psychology*, 107(2), 468–485.
- Wu, Z., Spreckelsen, T. F., & Cohen, G. L. (2021). A meta-analysis of the effect of values affirmation on academic achievement. *Journal of Social Issues*, 77(3), 702–750.