Looking on the Bright Side: Downward Counterfactual Thinking in Response to Negative Life Events

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Past research has found that downward counterfactual thoughts are rarely generated in response to negative life events. However, the authors suggest that under conditions in which self-enhancement motives are prominent, downward counterfactuals will be more frequent than upward counterfactuals. When motives were explicitly manipulated (Study 1), people generated more downward counterfactuals in the self-enhancement than in the self-improvement and control conditions. In Study 2, among those chronically more motivated to self-enhance (i.e., European Canadians), a manipulation of event severity led to the generation of more downward than upward counterfactuals. This finding was mediated by the desire for self-enhancement. In Study 3, cultural background and the opportunity for self-affirmation were related to the generation of downward counterfactuals in expected ways. Implications of these findings are discussed.

Keywords: counterfactual thinking; self-enhancement; culture; coping

We have, without any doubt, the best Police Department, the best Fire Department, the best police officers, the best fire officers, and the best emergency workers of any place in the whole world. And, although today's tragedy is going to be enormous, and there's no way to minimize it, if it weren't for them, *this tragedy would be far worse . . .* without our Police Department, our Fire Department, our EMS, and the kinds of people we have, many of whom lost their lives, there *would be double or triple the number of casualties.*

> —Mayor Rudolph Giuliani
> (The Washington Post Company,
> September 12, 2001; italics added)

People often respond to events in their lives by considering alternative scenarios of "what might have been,"

and Mayor Giuliani's statement illustrates this type of thinking with respect to a particularly traumatic event. The process of generating such thoughts is called counterfactual thinking (e.g., Kahneman & Miller, 1986). The generation of alternative scenarios that are better than what actually happened is labeled upward counterfactual thinking, whereas the generation of alternative scenarios that are worse than what actually occurred is labeled downward counterfactual thinking (Markman, Gavanski, Sherman, & McMullen, 1993; see Roese & Olson, 1995a, for a review).

Mayor Giuliani appeared to be using downward counterfactuals in an attempt to alleviate the feelings of threat and despair thrust on his fellow New Yorkers. Although little research has examined the conditions under which counterfactuals are used to resolve such threatening feelings, poignant examples such as this suggest that simulating possible worse worlds may be one way in which people cope. In the current studies, we test the notion that when self-enhancement[1] motives are prominent people will generate a preponderance of downward counterfactuals.

The Functional Theory of Counterfactual Thinking

One widely supported view is that counterfactuals serve both affective and preparative functions (e.g., Roese, 1994). According to this functional theory of counterfactual thinking, upward counterfactuals serve a preparative (sometimes referred to as self-improvement) function, allowing individuals to prepare for the future by providing information about how to improve. Downward counterfactuals serve an affective (sometimes referred to as self-enhancement) function, allowing individuals to feel better about themselves by comparison to worse-off simulations of what might have occurred (e.g., Markman et al., 1993; Nasco & Marsh, 1999; Roese, 1994; Roese & Olson, 1995b, 1995c).

Although both functions of counterfactuals have been noted in the literature, a review reveals that upward counterfactuals are more commonly generated in response to negatively valenced events than are downward counterfactuals. Although there are moderators of this finding, people have been found to generate a majority of upward counterfactuals in response to manipulated failure on laboratory tasks (Markman et al., 1993; Roese & Hur, 1997; Roese & Olson, 1997), recalled negative events (Mandel, 2003, Roese & Olson, 1997; Sanna, Turley-Ames, & Meier, 1999; Schimel, Arndt, Pyszczynski, & Greenberg, 2001), poor performance on academic tests (Nasco & Marsh, 1999), vignettes of negative life occurrences (Galinsky & Moskowitz, 2000; Roese & Hur, 1997; Roese & Olson, 1995c, 1997; Sanna et al., 1999; Sanna, Meier, & Turley-Ames, 1998), losses in sporting events (Grieve, Houston, Dupuis, & Eddy, 1999), and negative affective states (Roese, 1997; Roese & Hur, 1997; Sanna et al., 1998, 1999). In fact, according to Roese and Olson (1997), less than 10% of reported counterfactuals in response to negative events appear to be of the downward variety. More evidence, therefore, has amassed for the preparative and self-improving nature of counterfactuals than for the affective and self-enhancing nature of counterfactuals.[2]

*Counterfactual Thinking in
Response to Stressful Life Events*

Similar to the categories of affective and preparative functions of counterfactual thoughts, stress and coping researchers (e.g., Folkman & Lazarus, 1980) differentiate two general types of coping efforts. Problem-focused coping involves efforts to modify the situation, whereas emotion-focused coping involves regulating the emotional consequences of stressful events. Upward counterfactual thinking has been theorized to represent a problem-focused coping strategy, in which one attempts to plan for the future and attain a sense of control and mastery over negative events (Kasimatis & Wells, 1995; Taylor & Schneider, 1989). Downward counterfactual thinking, conversely, has been posited to represent emotion-focused coping, whereby negative mood states are alleviated by comparison to a simulated alternative that makes one's actual state of affairs seem less negative (Kasimatis & Wells, 1995; Roese, 1994).

Although the notion that downward counterfactuals can serve a coping function has been discussed theoretically, past research on stressful life events and counterfactual thinking has focused primarily on upward counterfactuals (Davis & Lehman, 1995; Davis, Lehman, Silver, Wortman, & Ellard, 1996; Davis, Lehman, Wortman, Silver, & Thompson, 1995). Davis and colleagues (Davis et al., 1995; Davis & Lehman, 1995), for example, examined responses to highly stressful events such as the loss of a loved one in a motor vehicle accident and the loss of a child to Sudden Infant Death Syndrome. Respondents commonly reported imagining how things could have turned out better, which was associated with psychological distress. However, this research focused specifically on upward counterfactuals—asking open-ended questions about upward counterfactuals and coding only for upward counterfactuals. Compared to upward counterfactual thinking, the role of downward counterfactual thinking in response to negative life events has received scant attention in the literature.

*Downward Social Comparisons and Downward
Counterfactual Thinking as Coping Strategies*

Although the counterfactual literature offers little empirical evidence for the generation of downward counterfactuals in response to negative life events, the social comparison literature is suggestive in this regard. When people are threatened, experience failure, or are otherwise motivated to self-enhance they often engage in downward social comparison (e.g., Aspinwall & Taylor, 1993; Pyszczynski, Greenberg, & LaPrelle, 1985; Wills, 1981). According to Selective Evaluation Theory, those who experience stressful events often employ strategies to make themselves feel comparatively fortunate, thereby mitigating feelings of loss of meaning, perceptions of lack of control, and threats to self-esteem (Taylor, 1983; Taylor, Wood, & Lichtman, 1983). In this way, downward social comparisons serve a coping function, providing a buffer against stressful life events (e.g., Gibbons & Gerrard, 1991; Wills, 1987). For example, although cancer patients make upward social comparisons for informational, affiliative, and inspirational reasons (Taylor & Lobel, 1989), they often evaluate themselves against worse-off others in ways that ameliorate threats to self-esteem (Wood, Taylor, & Lichtman, 1985). Similar evidence for downward social comparisons has been found among other threatened individuals, such as those with rheumatoid arthritis (Affleck, Tennen, Pfeif-

fer, Fifield, & Rowe, 1987; Blalock, DeVellis, & DeVellis, 1989), spinal cord injuries (Schulz & Decker, 1985), and AIDS (Taylor, Kemeny, Reed, & Aspinwall, 1991).

There are many parallels between social comparison and counterfactual thinking (see Markman et al., 1993; Olson, Buhrmann, & Roese, 2000), and as such, it seems likely that downward counterfactuals too may be generated to serve a self-enhancement function. Yet, it is important to empirically demonstrate the self-enhancement function of downward counterfactuals because, as noted earlier, the counterfactual literature has produced very different findings than the social comparison literature.

Self-Motives and Downward Counterfactual Thinking

Why is the counterfactual literature short on evidence for the generation of downward counterfactuals following negative life events when other research reveals that people often engage in downward social comparison when coping with negative life events? Although both self-enhancement and self-improvement functions have been identified in the counterfactual literature, that upward counterfactuals have more commonly been found in response to negative events may be due to much past research focusing on conditions under which self-improvement motives dominate (e.g., performance-related tasks). Although these types of tasks and settings are likely to induce some desire for self-enhancement, it may be that self-improvement motives overshadowed the tendency to self-enhance in these studies.

However, some recent evidence supports the notion that those who are more motivated to buttress the self are more likely to engage in downward counterfactual thinking (Schimel et al., 2001). These researchers found that participants who believed they were liked intrinsically by others (and who presumably were less motivated to self-enhance) generated more upward counterfactuals (and fewer downward counterfactuals) than those who did not believe they were liked intrinsically by others. Neither group, however, generated more downward than upward counterfactuals.

Another line of evidence suggesting that motives relate to the generation of counterfactuals has found that optimists (Sanna, 1996, 1998) and those high in self-esteem (Sanna et al., 1998, 1999) are more likely than their counterparts to generate downward counterfactuals in response to negative moods and events. Presumably, this is because optimists and those high in self-esteem are motivated to see themselves in a positive light. In another example, Sanna, Chang, and Meier (2001, Study 1) had participants engage in a word association task in the laboratory and then view either positive or negative mood-inducing movie clips. Participants then were asked to rate various upward and downward counterfactual statements in a computer task while

keeping particular self-motives (i.e., mood-repair, self-protection, mood-maintenance, or self-improvement) in mind. The results revealed that those with mood-repair motives agreed more with downward counterfactual statements when in bad moods than when in good moods, and more than people with self-improvement, mood-maintenance, or self-protection motives. These studies involved laboratory tasks to which participants responded to upward and downward counterfactual statements. The current studies build on this research by examining whether self-enhancement motives can lead people to generate more downward than upward counterfactuals in response to negative events. Specifically, we examined whether self-enhancement as indexed by a motive manipulation (Study 1), event severity (Study 2), cultural background (Studies 2 and 3), and absence of self-affirmation (Study 3) predicts the generation of downward counterfactuals.

STUDY 1: MANIPULATION OF MOTIVES AND COUNTERFACTUAL THINKING

As an initial exploration of the hypothesis that self-enhancement motives lead to the generation of downward counterfactuals, we examined whether people recognize the different functions of upward and downward counterfactuals. That is, we tested whether people intuitively believe that downward more so than upward counterfactuals serve self-enhancement goals. The procedure was similar to that used by Wilson and Ross (2000), in which they gave participants either self-enhancement or accuracy motive instructions and then measured the relative frequencies of temporal and social comparisons. In Study 1, we gave participants self-enhancement, self-improvement, or no motive instructions and then examined the frequency of upward and downward counterfactuals. We anticipated that those given a self-enhancement motive would generate more downward counterfactuals than those given a self-improvement motive or no motive.

Method

Participants. One hundred thirty-eight undergraduates (106 women, 32 men) participated in this study for course credit.[3]

Procedure. Participants were asked to read, in counterbalanced order, two scenarios in which they imagined themselves experiencing a negative life event.[4] One scenario involved a car accident and the other involved the dissolution of a romantic relationship. Those in the no-motive condition were given no further instructions. Those in the self-improvement (self-enhancement) condition read the following:

Sometimes we want to think about the situation in a way that makes us *learn from the situation* [*feel particularly good about ourselves*]. We select the information *that we can learn from and that we can use to improve or to avoid a similar situation in the future* [*that makes us feel better and describes the situation in the most positive light*]. The ability to sometimes think about the situation in this way may be important for adaptive functioning and good mental health. On this page we would like you to write down the thoughts that you would have about the situation if you wanted to *improve yourself or learn from the situation* [*lift your spirits or see your situation in the most positive light possible*].

The wording in the self-enhancement motive condition was adapted from Wilson and Ross (2000). Participants then were instructed to write down their open-ended responses to the situation.

Results

Coding of counterfactuals. Participants' responses were coded by two blind raters for upward, $r = .97$, $p < .0001$, and downward, $r = .87$, $p < .0001$, counterfactuals in response to the car accident scenario, as well as upward, $r = .84$, $p < .0001$, and downward, $r = .97$, $p < .0001$, counterfactuals in response to the relationship scenario. Disagreements between the coders were resolved through discussion. Indexes of the number of upward and downward counterfactuals generated were created by averaging the number of counterfactuals (across both scenarios and both coders).

Motives and direction of counterfactual thinking. We anticipated that those given a self-enhancement motive would generate more downward counterfactuals than those given a self-improvement or no motive. A 3 (motive condition: self-enhancement vs. self-improvement vs. none) × 2 (counterfactual direction: upward vs. downward) mixed-model ANOVA with counterfactual direction as the repeated measure revealed a significant interaction, $F(2, 135) = 32.49$, $p < .0001$, $d = .98$ (refer to Table 1).[5] As predicted, more downward counterfactuals were generated by those given a self-enhancement motive than those given no motive, $t(135) = 4.75$, $p < .0001$, $d = .82$, or a self-improvement motive, $t(135) = 6.44$, $p < .0001$, $d = 1.11$. More upward counterfactuals were generated by those given a self-improvement motive than those given a self-enhancement motive, $t(135) = 2.58$, $p < .01$, $d = .44$. There also were qualified main effects for motive condition, $F(2, 135) = 17.06$, $p < .0001$, $d = .71$, and counterfactual direction, $F(1, 135) = 53.32$, $p < .0001$, $d = 1.26$.

Discussion

In Study 1, those given a self-enhancement motive generated more downward counterfactuals than those given a self-improvement motive or no motive. Although

TABLE 1: Generation of Counterfactuals as a Function of Motives (Study 1)

	Spontaneous Counterfactuals	
	Upward Counterfactuals	*Downward Counterfactuals*
Self-enhancement ($N = 45$)	$M = 0.17_a$ $SD = 0.38$	$M = 2.78_b$ $SD = 2.29$
No motive ($N = 47$)	$M = 0.40_c$ $SD = 0.64$	$M = 0.94_d$ $SD = 1.25$
Self-improvement ($N = 46$)	$M = 0.50_c$ $SD = 0.78$	$M = 0.45_c$ $SD = 0.82$

NOTE: Means and standard deviations are of the numbers of counterfactuals reported. Within columns and rows, numbers with differing subscripts differ at least at the $p < .05$ level, two-tailed.

the literature reveals little evidence of people engaging in downward counterfactual thinking in ways that are self-enhancing, people seem to intuitively believe that downward counterfactuals best serve self-enhancement goals. These results are consistent with our thesis that self-enhancement motives are related to the generation of more downward than upward counterfactuals.

Whereas past research has indirectly examined self-enhancement and self-improvement motives through manipulations of controllability (e.g., Roese & Olson, 1995c) and repeatability (e.g., Markman et al., 1993), Study 1 did so directly. Study 1 also assessed participants' spontaneously reported counterfactuals (i.e., participants were not specifically asked about upward and downward counterfactuals). To satisfy a self-enhancement motive, participants could conceivably engage in a variety of cognitive responses. It is thus somewhat telling that participants generated more downward counterfactuals in the self-enhancement condition than in the other conditions. However, one drawback of Study 1 is that participants may have simply told us what they "might do" if they were motivated to self-enhance rather than actually adopting a self-enhancement motive. Studies 2 and 3 examine the motive for self-enhancement using different methodologies.

STUDY 2: EVENT SEVERITY AND COUNTERFACTUAL THINKING

Past research suggests that those who are threatened in some way often are motivated to enhance the self. For example, people have been observed to self-enhance in response to self-relevant threats by recruiting downward social comparisons (Wills, 1981; Wood et al., 1985), constructing favorable temporal comparisons (McFarland & Alvaro, 2000), derogating outgroups (Crocker, Thompson, McGraw, & Ingerman, 1987), resorting to negative stereotypes (Fein & Spencer, 1997), inflating their own self-image (Greenberg & Pyszczynski, 1985),

and making self-serving attributions (see Campbell & Sedikides, 1999). In support of the notion that negative events will lead to a desire for self-enhancement and thus more downward counterfactual thinking, we gathered pilot data from participants responding to two very different types of negative life events: chronic fatigue syndrome and the terrorist attacks of September 11. In both pilot studies, participants generated significantly more downward than upward counterfactuals.[6] Although these data are consistent with our hypothesis that a self-enhancement motive (induced by threat to the self) will lead to more downward than upward counterfactual thinking, these pilot studies simply examined the frequency of upward and downward counterfactuals among single samples.

In Study 2, we manipulated event severity to induce a self-enhancement motive. Research demonstrates that stressful-life events are threatening to the self (e.g., Janoff-Bulman, 1989; Taylor, 1983) and that recalling such negative events does threaten feelings of self-worth (McFarland & Alvaro, 2000, Study 4). We anticipated that participants (at least those dispositionally motivated to self-enhance) would generate more downward counterfactual thoughts in response to threatening than mild negative events.

We tested this reasoning by examining relations between event severity, cultural background, and counterfactual thinking. Whereas decades of research suggest that Westerners selectively interpret, filter, and distort information in ways that are self-enhancing (e.g., Taylor & Brown, 1988), more recent research suggests that those from East Asian backgrounds are not as apt to demonstrate self-enhancement motives (e.g., Heine & Lehman, 1995, 1997; Heine, Lehman, Markus, & Kitayama, 1999). In comparison to those from Western backgrounds, those from East Asian backgrounds tend to be more motivated by self-improvement (Heine et al., 2001). Our main prediction, therefore, was that among European Canadians, increased event severity would heighten self-enhancement motives, leading to the generation of more downward than upward counterfactuals. For Asian Canadians, a more severe negative event might elicit a self-improvement motive and lead to the generation of more upward than downward counterfactuals. This prediction was based on the finding that negative outcomes tend to heighten self-improvement motives among those from East Asian backgrounds (Heine et al., 2001; White & Lehman, 2005). To test these predictions, European Canadian and Asian Canadian participants were asked to recall either a severe or a mild negative event that they had experienced and then to recall any counterfactuals they had generated in response to the event.

Method

Participants. Asian Canadians ($n = 52$) and European Canadians ($n = 24$) participated in this study for course credit. The European Canadian sample comprised mostly those of British descent and British mixed with another European background (84.0%). The Asian Canadian sample comprised those from East Asian backgrounds, mostly of Chinese descent (88.2%).

Materials and procedure. Participants, in groups of two to four, completed a questionnaire that first asked them to recall a negative event (see McFarland & Alvaro, 2000, for a similar procedure). In the severe event condition, they were asked to "Think back and describe a *very negative, stressful, or traumatic event* that happened to you." In the mild event condition, participants were asked to "Think back and describe a *mildly negative or stressful event* that happened to you." Participants were asked to reflect on and actively imagine the event and then to describe it in writing. As a manipulation check of event severity, participants rated how traumatic, stressful, and unpleasant the event was on 9-point scales. Participants then were asked, in counterbalanced order, about counterfactual thoughts:

> Please try your best to accurately recall what thoughts you had about the event you described above. You may have had thoughts about how things could have been *better* (*worse*) or no such thoughts at all. Please take some time to tell us about any thoughts you had about how things might have turned out *better* (*worse*).

After reporting each type of counterfactual, participants were asked an open-ended question prompting them to report their motives for counterfactual thoughts: "Why do you think you had these thoughts? Tell us any reasons or motives you may have had for thinking about the ways things could have turned out *better* (*worse*)."

Results

Coding for counterfactuals and creation of event severity index. Good interrater reliability was observed for upward, $r = .91$, $p < .0001$, and downward, $r = .93$, $p < .0001$, counterfactuals. An event severity index was created by averaging the three pertinent items ($\alpha = .73$).

Manipulation check. Those in the severe event condition reported that the event was more severe ($M = 7.14$) than did those in the mild event condition ($M = 5.72$), $t(74) = 3.89$, $p < .0001$, $d = .90$. To ensure that the events recalled in the severe event condition really were more negative than those recalled in the mild event condition (and that ratings were not merely due to demand characteristics), two blind raters coded for how "traumatic" and "negative" the reported events were on 7-point scales.

The ratings for both coders were averaged to create a coder index of event severity (α = .96). Analysis of this index confirmed that those in the severe event condition recalled more negative events ($M = 6.26$) than those in the mild event condition ($M = 5.13$), $t(74) = 8.34$, $p < .0001$, $d = 1.94$.

Event severity, cultural background, and counterfactual thinking. The key hypothesis was that the self-enhancement tendencies of European Canadians and the self-improvement tendencies of Asian Canadians would be heightened in response to severe relative to mild negative events. This should be evident in European Canadians generating more downward counterfactuals (and Asian Canadians generating more upward counterfactuals) in response to severe rather than mild life events. A 2 (cultural background: European Canadian vs. Asian Canadian) × 2 (event type: severe vs. mild) × 2 (counterbalancing: upward first vs. downward first) × 2 (counterfactual direction: upward vs. downward) mixed-model ANOVA with direction of counterfactuals as the repeated measure was conducted. As predicted, there was a significant three-way interaction between cultural background, event severity, and counterfactual direction, $F(1, 68) = 6.50$, $p < .02$, $d = .62$. As Table 2 depicts, when responding to mild negative life events, European Canadians and Asian Canadians did not significantly differ in their tendencies to generate upward and downward counterfactuals. When responding to severe events, however, European Canadians reported significantly more downward than upward counterfactuals, $t(68) = 2.17$, $p < .04$, $d = .53$, whereas Asian Canadians reported significantly more upward than downward counterfactuals, $t(68) = 3.64$, $p < .001$, $d = .89$. The three-way interaction also qualified a two-way interaction between cultural background and counterfactual direction, $F(1, 68) = 7.52$, $p < .01$, $d = .66$.

Motives and counterfactual thinking. Blind raters coded (on 7-point scales) participants' open-ended reports of motives of self-enhancement ("To what degree does the individual appear to be motivated to cast himself or herself in a positive light?" and "To what degree does the individual appear to be motivated to feel better about himself or herself?") and self-improvement ("To what degree does the individual appear to be motivated to improve himself or herself?" and "To what degree does the individual appear to be motivated to learn how to do better next time?") motives. Statements such as, "By thinking this way, I will not make the same mistake later on so that I will be wiser to make choices in the future" were coded as high in self-improvement, whereas statements such as, "I think of what could've been worse to comfort myself and make myself think more positively" were coded as high in self-enhancement. Indexes of self-

TABLE 2: Mean Number of Upward and Downward Counterfactuals as a Function of Cultural Background and Event Type (Study 2)

Counterfactual Direction	Event Type			
	Mild Event		Severe Event	
	Upward	Downward	Upward	Downward
European Canadian	$M = 1.91_a$ $SD = 1.40$	$M = 1.54_a$ $SD = 2.22$	$M = 1.86_a$ $SD = 1.15$	$M = 3.29_b$ $SD = 2.66$
Asian Canadian	$M = 2.18_{ac}$ $SD = 1.52$	$M = 1.68_{ad}$ $SD = 1.77$	$M = 2.96_c$ $SD = 2.28$	$M = 1.11_d$ $SD = 1.50$

NOTE: Means and standard deviations are of the numbers of counterfactuals reported. Within columns and rows, numbers with differing subscripts differ at least at the $p < .05$ level, two-tailed.

enhancement (α = .90) and self-improvement (α = .98) for upward counterfactuals and indexes of self-enhancement (α = .93) and self-improvement (α = .96) for downward counterfactuals were created by averaging the two coders' ratings.

Correlational analysis indicated that self-enhancement motives (for downward counterfactuals) were positively correlated with the number of downward counterfactuals generated, $r = .58$, $p < .0001$, whereas self-improvement motives (for upward counterfactuals) were positively correlated with the number of upward counterfactuals generated, $r = .27$, $p < .03$. Of interest, self-improvement motives (for downward counterfactuals) also were related to the number of downward counterfactuals generated, $r = .26$, $p < .04$. Downward counterfactuals, it would seem, although strongly associated with self-enhancement, also are related to a self-improvement function.

A Culture × Event Type ANOVA on the self-enhancement index (in response to downward counterfactuals) revealed a significant interaction between culture and event type, $F(1, 63) = 4.08$, $p < .05$, $d = .51$. Asian Canadians reported a similar degree of self-enhancement across the mild ($M = 4.19$) and severe ($M = 3.90$) event conditions, $t(63) = .37$, $p > .7$, $d = .09$, whereas European Canadians reported more self-enhancement motives in response to severe ($M = 5.62$) than mild ($M = 3.17$) events, $t(63) = 2.22$, $p < .04$, $d = .56$. In the mild event condition, European Canadians and Asian Canadians did not differ in ratings of self-enhancement, $t(63) = 1.04$, $p < .32$, $d = .26$. However, in the severe event condition, European Canadians reported marginally more self-enhancement motives than did Asian Canadians, $t(63) = 1.87$, $p < .07$, $d = .47$. Similar analysis on self-improvement motives in response to upward counterfactuals revealed no significant interaction between culture and event type, $F(1, 69) = .41$, $p > .5$.

To test for mediation (Baron & Kenny, 1986; Judd, Kenny, & McClelland, 2001), a difference score between

upward and downward counterfactuals was computed. The two-way interaction between culture and event type predicting the counterfactual thinking index was significant, $F(1, 68) = 6.50$, $p < .02$, $d = .62$.[7] In addition, the two-way interaction between culture and event severity predicted self-enhancement, $F(1, 63) = 4.08$, $p < .05$, $d = .51$, and self-enhancement significantly predicted counterfactual thinking when the interaction between event severity and culture was controlled for, $F(1, 61) = 19.01$, $p < .0001$, $d = 1.12$. Finally, when both the interaction term and self-enhancement were simultaneously entered as predictors of counterfactual thinking, the relationship between the interaction term and counterfactual thinking was reduced to nonsignificance, $F(4, 61) = .09$, *ns*. Thus, self-enhancement motives played a fully mediational role between the interaction of culture and event type and counterfactual thinking.

Alternative explanations for the data. Whereas European Canadians were more likely to generate downward than upward counterfactuals in response to severe negative life events, Asian Canadians exhibited the opposite pattern. We suggest that this is due, at least in part, to the differential desire for self-enhancement among European and Asian Canadians responding to severe life events. In support of this notion, self-enhancement motives statistically mediated the relationship between the interaction of culture and event type and counterfactual thinking. One alternative possibility, however, is that in the severe event condition, Asian Canadians and European Canadians recalled events that differed in severity and this was responsible for the differential generation of upward and downward counterfactuals. We did not find evidence for this alternative explanation as there was no significant interaction between culture and event type on participants' ratings of event severity, $F(1, 72) = .34$, $p < .56$, or on coders' ratings of event severity, $F(1, 72) = .33$, $p < .57$.

A second alternative explanation for our findings is that in the severe event condition, Asian Canadians and European Canadians recalled events that differed on factors such as internal control, external control, and repeatability. Events that differ on these dimensions might lead to the differential generation of upward and downward counterfactuals. To test this possibility, coders rated the events (on 7-point scales) for the degree to which the recalled events were under the individuals' internal control ("To what degree do you think the event was caused by the individual's own actions?" "To what degree did the individual have personal control over the event?" [$\alpha = .97$]), influenced by external control ("To what degree do you think the event was under the control of factors external to the individual?" [$\alpha = .87$]), and repeatable ("How likely do you think it is that the individual will experience a similar event in the future?" and

"How repeatable is the event?" [$\alpha = .93$]). Indexes were created for these three variables by averaging across the coders' ratings. A Culture × Event Type MANOVA was conducted on the indexes of internal control, external control, and repeatability. There was no significant interaction between culture and event type when predicting internal control, $F(1, 72) = 1.00$, $p < .76$, external control, $F(1, 72) = 1.33$, $p < .25$, or repeatability, $F(1, 72) = .82$, $p < .38$. For example, it was not the case that European Canadians in the severe condition recalled events that were significantly lower in internal control, higher in external control, or less repeatable than Asian Canadians. It is thus unlikely that these variables account for our findings. Indeed, the key interaction between culture, event type, and counterfactual direction remained significant when internal control, $F(1, 67) = 6.23$, $p < .02$, $d = .61$, external control, $F(1, 67) = 6.34$, $p < .02$, $d = .62$, and repeatability, $F(1, 67) = 5.88$, $p < .02$, $d = .59$, were included as covariates.

STUDY 3: SELF-AFFIRMATION AND COUNTERFACTUAL THINKING

Studies 1 and 2 provided evidence that self-enhancement motives are related to downward counterfactual thinking. In Study 3, we used a self-affirmation task to further explore the links between self-enhancement and the generation of downward counterfactuals. Past research suggests that when individuals are given the opportunity to affirm the self via the acknowledgment of important values, the tendency to self-enhance through other means is attenuated (Steele, 1988). For example, the inclinations to hinder a close other's performance after a threatening upward social comparison (Tesser & Cornell, 1991), engage in downward social comparison (Spencer, Fein, & Lomore, 2001), derogate others when threatened (Fein & Spencer, 1997), exhibit dissonance reduction (Steele & Liu, 1983), and be resistant to messages that counter one's views (Cohen, Aronson, & Steele, 2000; Correll, Spencer, & Zanna, 2004) all are reduced when people are first given the opportunity to self-affirm. Because a self-affirmation manipulation attenuates self-enhancement motives, we anticipated that, compared to those who are not given the opportunity to self-affirm, those given the opportunity to self-affirm would be less likely to generate downward counterfactuals regarding a negative event. Presumably, when given the opportunity to feel better about the self through self-affirmation, people will have less of a need to generate downward counterfactuals to self-enhance. On the other hand, those who recall a threatening event and are not given a self-affirmation task are predicted to generate more downward than upward counterfactuals because the need for self-enhancement is still present.

In addition, we examined relations between cultural background and counterfactual thinking. We anticipated that European Canadians would generate more downward than upward counterfactuals, whereas Asian Canadians would exhibit the opposite tendency. The self-affirmation procedure we used not only allows for individual self-enhancement (e.g., traits such as "being independent," "physical attractiveness") but also for relationship enhancement (e.g., values such as "relations with friends and family"). Past research suggests that although those from East Asian cultural backgrounds are less likely to exhibit self-enhancement biases, they do appear to engage in relationship enhancement (Endo, Heine, & Lehman, 2000). Thus, we remained agnostic on whether cultural background, self-affirmation condition, and counterfactual direction would interact.

Method

Participants. Seventy participants completed this study for course credit. We preselected European Canadians ($n = 37$) and Asian Canadians ($n = 33$). Again, the majority of European Canadians were of British descent (or British mixed with another European background [61.7%]). The majority of Asian Canadians were of Chinese decent (70.5%).

Materials and procedure. In groups of two to four, participants completed a study ostensibly investigating personality and reactions to life events. Using the same procedure as in the severe event condition in Study 2, participants were asked to recall a traumatic life event and describe the event in writing. As in Study 2, participants completed the measures of event severity ($\alpha = .67$) and coders coded for severity ($\alpha = .96$), internal control ($\alpha = .96$), external control ($\alpha = .86$), and repeatability ($\alpha = .95$). To determine whether recalling negative events was indeed threatening to the self, coders also coded for degree of threat to the individual ($\alpha = .82$). After participants completed this task (which presumably was somewhat threatening to the self), they were told that the experimenter had forgotten to administer one of the personality measures and that they would now be asked to complete a measure of how people evaluate different values. Participants were then given the self-affirmation manipulation, which was modeled after that used successfully in past research (e.g., Steele, 1988). Specifically, all participants were asked to rank order 11 traits and values. Participants were randomly assigned to one of two conditions. In the self-affirmation condition, participants were asked to write about why their first-ranked value was important to them and to describe a time in their lives when that particular value was meaningful to them. In the no-self-affirmation condition, participants were asked to write about why their ninth-ranked value

might be important to a typical University of British Columbia student and to describe a time (true or fictitious) when that value was meaningful to someone else.

After completing the self-affirmation task, participants completed a questionnaire package. Participants were asked to think back to the stressful life event they had recalled at the beginning of the study and then were asked, in counterbalanced order, about any upward and downward counterfactuals they currently had regarding the event.

Results

Preliminary coding and analysis. Good interrater agreement was observed for upward, $r = .93$, $p < .0001$, and downward counterfactuals, $r = .96$, $p < .0001$. There were no significant cultural differences in participant ratings of event severity, $t(67) = .66$, $p < .52$, or in coder ratings of event severity, $t(68) = .00$, *ns*. Of importance, the events in this study were coded by the raters as being significantly more negative $(M = 6.0)$, $t(69) = 32.55$, $p < .0001$, $d = 7.84$, and threatening $(M = 6.1)$, $t(69) = 31.95$, $p < .0001$, $d = 1.95$, than the scale midpoint (3.5).

Self-affirmation and counterfactual thinking. We anticipated that participants not given the opportunity to self-affirm would generate more downward counterfactuals than those given the opportunity to affirm the self. We conducted a 2 (self-affirmation condition: self-affirmation vs. no self-affirmation) × 2 (culture: Asian Canadian vs. European Canadian) × 2 (counterbalancing: upward first vs. downward first) × 2 (counterfactual direction: upward vs. downward) mixed model ANOVA with counterfactual direction as the within-subjects measure. The predicted interaction between counterfactual direction and self-affirmation condition was statistically reliable, $F(1, 62) = 5.78$, $p < .02$, $d = .61$. Those who were not given the opportunity to self-affirm generated significantly more downward counterfactuals $(M = 2.82)$ than those given the opportunity to self-affirm $(M = 1.74)$, $t(62) = 2.27$, $p < .03$, $d = .58$. Also, participants in the no affirmation condition generated marginally more downward $(M = 2.82)$ than upward $(M = 1.93)$ counterfactuals, $t(62)$ 1.90, $p < .07$, $d = .48$.

Analysis of the coders' ratings revealed that the affirmation and no affirmation conditions did not differ in terms of severity, internal control, or repeatability of events $(ps = .39$ to $.84)$. In addition, the interaction between affirmation condition and counterfactual direction remained reliable when statistically controlling for event severity, $F(1, 61) = 5.38$, $p < .03$, $d = .59$, internal control, $F(1, 61) = 5.87$, $p < .02$, $d = .62$, external control, $F(1, 61) = 5.69$, $p < .03$, $d = .60$, and repeatability, $F(1, 61) = 6.67$, $p < .02$, $d = .66$.

Cultural background and counterfactual thinking. We also examined the prediction that European Canadians would generate more downward than upward counterfactuals, whereas Asian Canadians would exhibit the reverse pattern. The predicted interaction between culture and counterfactual direction emerged, $F(1, 62) = 9.48$, $p < .01$, $d = .78$. European Canadians generated significantly more downward ($M = 2.92$) than upward ($M = 1.80$), $t(62) = 2.43$, $p < .02$, $d = .62$, counterfactuals, whereas Asian Canadians generated significantly more upward ($M = 2.64$) than downward counterfactuals ($M = 1.64$), $t(62) = 2.04$, $p < .05$, $d = .52$. The interaction between affirmation condition, culture, and counterfactual direction was not significant, $F(1, 62) = .39$, $p < .54$ (see Table 3 for means for the full design).

Analysis of the coders' ratings indicated that there were no significant cultural differences in the internal controllability, external controllability, or severity of events recalled (ps = .32 to .92), although Asian Canadians did report marginally more repeatable events ($M = 5.20$) than did European Canadians ($M = 4.55$), $t(68) = 1.72$, $p < .1$, $d = .42$. Of importance, however, the interaction between culture and counterfactual direction remained significant when controlling for repeatability, $F(1, 61) = 7.63$, $p < .01$, $d = .71$, as well as when including event severity, $F(1, 61) = 9.44$, $p < .005$, $d = .77$, internal control, $F(1, 61) = 9.40$, $p < .005$, $d = .79$, and external control, $F(1, 61) = 8.79$, $p < .005$, $d = .76$, as covariates.

Discussion

The results of Study 3 indicate that a self-enhancement motive differential, as manipulated by a self-affirmation task, predicted the degree of upward and downward counterfactuals generated. Specifically, those not given the opportunity to self-affirm generated significantly more downward counterfactuals in response to negative life events than those given the opportunity to self-affirm. Finally, whereas European Canadians generated more downward than upward counterfactuals, Asian Canadians generated more upward than downward counterfactuals. These results do not appear to be due to differential internal controllability, external controllability, severity, or repeatability of events recalled by Asian and European Canadians.

We did not find evidence of an interaction between self-affirmation condition, cultural background, and direction of counterfactual thinking. In other words, the self-affirmation procedure did not have a significantly differential effect on European and Asian Canadians. However, it is noteworthy that it was in the no-self-affirmation condition that European Canadians generated more downward than upward counterfactuals. The lack of a three-way interaction might be owing to the nature of our self-affirmation task, which allowed for

TABLE 3:   Number of Upward and Downward Counterfactuals Generated as a Function of Self-Affirmation Condition and Cultural Background (Study 3)

Counterfactual Direction	Self-Affirmation Condition			
	Self-Affirmation		No Self-Affirmation	
	Upward	Downward	Upward	Downward
European Canadian	$M = 2.13_a$ $SD = 1.71$	$M = 2.20_{ab}$ $SD = 1.70$	$M = 1.48_a$ $SD = 1.17$	$M = 3.64_c$ $SD = 3.09$
Asian Canadian	$M = 2.89_a$ $SD = 1.98$	$M = 1.28_b$ $SD = 1.35$	$M = 2.38_{ab}$ $SD = 1.87$	$M = 1.99_{ab}$ $SD = 2.21$

NOTE: Means and standard deviations are of the numbers of counterfactuals reported. Within columns and rows, numbers with differing subscripts differ at least at the $p < .05$ level, two-tailed.

relationship-enhancement (e.g., values such as, "relations with friends and family") as well as for individual self-enhancement (e.g., traits such as "being independent"). Recent research indicates that self-affirmation tasks are effective for those from East Asian backgrounds when the affirmation task allows for interdependent self-enhancement (Hoshino-Browne, Zanna, Spencer, & Zanna, in press).

GENERAL DISCUSSION

Taken together, these studies provide converging evidence that the desire for self-enhancement, as indexed by motive instructions, event severity, cultural background, and self-affirmation, predicts the generation of more downward than upward counterfactuals in response to negative life events. Why do the current results run counter to previous studies, which did not find much evidence for the generation of downward counterfactuals following negative events? A key difference between the current set of studies and past research is that whereas many past studies that found a preponderance of upward counterfactuals examined counterfactual thinking in response to mildly negative events, laboratory tasks, or performance-related events, we examined responses to more stressful life events. It stands to reason that the latter events may have been more likely to invoke self-enhancement goals, whereas the events studied in previous research may have been more likely to invoke self-improvement goals. In past research, tasks that involved failure may well have induced a desire for self-enhancement, but perhaps aspects of the situation (e.g., performance-related tasks) made self-improvement motives more relevant. As a result, self-enhancement motives may have been overshadowed by self-improvement motives. Future research could profitably examine the interplay between both

types of motives. It is also noteworthy that some past studies specifically focused on upward counterfactual thinking, asking questions about upward counterfactuals and coding for upward (but not downward) counterfactuals (e.g., Davis et al., 1995, 1996).

Counterfactual Thinking Versus Social Comparison

Because there are similarities between social comparison and counterfactual thinking, one potential criticism of the current studies is that they simply demonstrate, in a slightly different fashion, that self-threat leads to downward social comparison. Although there is overlap between counterfactual thinking and social comparison (Markman & McMullen, 2003; Olson et al., 2000), the processes can be theoretically differentiated. The most apparent similarity between counterfactual thinking and social comparison is that both can involve self-other comparative evaluation. Social comparison involves comparison of self to other, whereas counterfactual thinking often involves comparison of self to an alternative version of the self. Thus, the clearest connection between counterfactual thinking and social comparison is that they both involve pairwise self-focused comparisons. However, counterfactual thinking need not invoke the self. Often, counterfactual thinking focuses on aspects of the situation that do not involve self-other comparison (e.g., "If only it weren't raining"). Second, although counterfactuals may be social in nature (e.g., "At least I didn't fail like Mike"), counterfactual thoughts need not access any social information (e.g., "At least the test was only worth 15%"). That is, a counterfactual thought can be generated without reference to an actual or imagined other. An interesting implication of these first two differences is that although downward social comparison always involves viewing another person in a more negative light, downward counterfactuals do not. From an impression management perspective, it may be that generating downward counterfactuals is a nicer way to self-enhance than engaging in downward social comparison.

Third, in contrast to social comparisons, counterfactuals are more diffuse and free to vary. Thus, when engaging in counterfactual thinking, people can imagine multiple ways in which their outcomes could have turned out differently. Owing to fewer constraints, counterfactuals may be more varied in terms of how they activate motivational strategies (e.g., prevention and promotion; see Markman & McMullen, in press). On a similar note, it seems likely that counterfactuals are more flexible in terms of how they can be used to serve different motives. Furthermore, although social comparison can be to an imaginary other, social comparison need not invoke counterfactual alternatives. A person can compare the self to another person without any

thoughts of how his or her own state of affairs could have turned out differently. Counterfactual thinking, by definition, always involves imagined alternatives.

Stressful Life Events and Counterfactual Thinking

We are not suggesting that people will always generate more downward than upward counterfactuals in response to negative life events. Some events are so traumatic that it may not be conceivable to imagine how things could have been worse (e.g., as may well have been the case in the Davis et al. studies). In addition, people in such circumstances or those with certain dispositions (e.g., depressed individuals) may lack the desire and/or the ability to lift their spirits and may not generate many (or any) downward counterfactuals. Although no research has tested this assertion, it is plausible that there is a curvilinear relation between degree of threat and generation of downward counterfactuals. Under low threat, few downward counterfactuals are generated because the boost to self-esteem is not needed. As degree of threat increases, so too does the generation of downward counterfactuals. However, if the degree of threat becomes too extreme, it may be that worse alternatives are rarely generated.

Would instructing individuals to recruit downward counterfactuals after experiencing stressful life events reduce threat to the self? How do people respond to counterfactuals told to them by others? People may have a tendency to tell others about how things could have been worse in an attempt to lift their spirits. However, such a strategy can backfire as minimizing the severity of the event may not be well received (Lehman, Ellard, & Wortman, 1986). In the opening quote, Mayor Giuliani certainly was aware that he should not minimize the events while employing downward counterfactuals to alleviate the negative emotions of others. Future research could profitably examine the interpersonal implications of counterfactual thinking and under what conditions offering downward counterfactuals to others is helpful versus unhelpful. The current research suggests that counterfactual alternatives can indeed be generated in ways that allow one to feel more positively about the self, and future research could examine whether offering these thoughts to others can, under certain conditions, have similar effects.

NOTES

1. We use the term "self-enhancement" to describe people's desire "to enhance the positivity of their self-conceptions and to protect the self from negative information" (Sedikides, 1993, p. 18). We acknowledge, however, that attempts to increase the positivity of the self may have distinct antecedents and consequences from attempts to decrease the negativity of the self (e.g., Paulhus & Reid, 1991). We use the terms "self-improvement" and "preparative" to refer to motives that involve a desire to improve the self and prepare for the future.

2. We believe that the preponderance of upward counterfactuals found in the literature is owing, at least in part, to the methodologies used. For example, past studies commonly examined scenarios involving another person (e.g., Roese & Olson, 1997), laboratory tasks (e.g., Roese & Hur, 1997), mildly negative events (e.g., Mandel, 2003), and poor academic performance (Nasco & Marsh, 1999). Past studies may not have been very threatening to the self (e.g., imagining another person in a scenario) or were often performance oriented (e.g., academic performance, anagram tasks, athletic performance), thus making self-improvement, rather than self-enhancement, motives dominant. In addition, researchers have sometimes specifically prompted for upward, but not downward, counterfactuals (e.g., Davis, Lehman, Silver, Wortman, & Ellard, 1996; Davis, Lehman, Wortman, Silver, & Thompson, 1995), making the generation of upward counterfactuals more likely to occur.

3. Participants included 31 European Canadian, 90 Asian Canadian, and 17 people from other cultural backgrounds. Although we examine cultural background in Studies 2 and 3, we did not predict any cultural differences in Study 1 because we explicitly gave participants motives to think about. It seemed likely that participants would simply report their intuitions about what they would do if they wanted to self-enhance, and so forth. This cultural variable is not discussed further in Study 1.

4. Order of presentation of the two scenarios did not predict significant variance in upward and downward counterfactual thinking, and it did not interact with motive condition to predict upward and downward counterfactual thinking. This variable is not discussed further.

5. Gender did not predict number of upward or downward counterfactuals in this or any of the studies. Furthermore, gender did not interact with any other independent variables in any of the studies to predict significant variance in counterfactual thinking. Thus, this variable is not discussed further.

6. In the first pilot study, we interviewed 105 people diagnosed with chronic fatigue syndrome. Respondents were asked to report any upward and/or downward counterfactual thoughts they had generated regarding their situation. Respondents generated significantly more downward ($M = 2.29$, $SD = 1.97$) than upward ($M = 1.77$, $SD = 1.59$) counterfactuals, $t(104) = 2.16$, $p < .04$, $d = .42$. In the second pilot study, 28 participants were asked to complete a questionnaire 1 week after the terrorist attacks of September 11. They were asked to report any upward and/or downward counterfactuals they had generated regarding the events of that day; the results revealed that participants reported significantly more downward ($M = 1.86$, $SD = 1.18$) than upward ($M = 1.14$, $SD = 0.93$) counterfactuals, $t(27) = 2.97$, $p < .01$, $d = 1.14$. Furthermore, participants were more likely to report self-enhancement motives for generating downward (50.0%) than upward (7.1%) counterfactuals, $\chi^2(1) = 32.23$, $p < .0001$, and more likely to report self-improvement motives for generating upward (36.4%) than downward (11.5%) counterfactuals, $\chi^2(1) = 12.94$, $p < .001$.

7. Analyses including the interaction term as the predictor variable controlled for the two main effects and for counterbalancing. The degrees of freedom for analyses including the self-enhancement index are lower because not all participants reported motives.

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