LOOKING ON THE BRIGHT SIDE: DOWNWARD COUNTERFACTUAL THINKING AND COPING WITH STRESSFUL LIFE EVENTS

by

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Abstract

Past research on counterfactual thinking suggests that downward counterfactuals are not frequently generated in response to negative events. An interrelated set of 5 studies examined whether, and under what conditions, people generate more downward than upward counterfactuals in response to stressful life events. Study 1 found that those with Chronic Fatigue Syndrome generated more downward than upward counterfactuals regarding their condition. Study 2 found that, in response to the events of September 11th, people tended to generate more downward than upward counterfactuals, particularly when they were motivated to make themselves feel better. In Study 3, in which motives were manipulated, those motivated by self-enhancement generated more downward counterfactuals than those motivated by self-improvement or those given no motives. Furthermore, European-Canadians (who are presumably more motivated to feel good about the self) generated more downward counterfactuals than Asian Canadians. Study 4 found no significant difference between the number of upward and downward counterfactuals recalled for mild vs. severe negative events. Once again European-Canadians generated more downward than upward counterfactuals, whereas Asian-Canadians did not demonstrate this tendency, providing further support for the notion that those who are motivated to feel good about the self generate more downward counterfactuals. These cultural differences in counterfactual thinking were more pronounced in response to severe than mild negative life events. Moreover, participants reported less negative moods, more positive moods, and more affect-regulation motives associated with downward counterfactuals than with upward counterfactuals. Finally, in Study 5, those who were not given the opportunity to affirm important values generated more downward than upward counterfactuals, whereas those who completed a self-affirmation task did not demonstrate this tendency. Taken together, the results advance
our understanding of downward counterfactual thinking in response to stressful life
events, and suggest that this tendency is related to the desire to repair moods and see the
self in a positive light.
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CHAPTER I: Overview and Summary

We have, without any doubt, the best Police Department, the best Fire Department, the best police officers, the best fire officers, 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...[W]hatever the number of casualties, 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.


Introduction

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; Kahneman & Tversky, 1982; Roese & Olson, 1995a) because it involves the mental simulation of events that are "counter" to the facts that actually transpired. The generation of alternative scenarios that are better than what actually happened is referred to as "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).

Giuliani was understandably employing downward counterfactual thinking in an
attempt to alleviate the feelings of threat and despair that had been thrust upon his fellow
New Yorkers. Although little research has examined whether and under what conditions
people engage in downward counterfactual thinking in response to stressful life events,
poignant examples such as this one suggest that the simulation of possible worse worlds may
be one way in which people cope.

Previous Research on Counterfactual Thinking

Past research suggests that once counterfactual thoughts are brought to mind they
may influence causal ascriptions (Lipe, 1991; McGill & Klein, 1993; Wells & Gavanski,
1989), preventability ascriptions (Mandel & Lehman, 1996), suspicion (Miller, Turnbull, &
McFarland, 1989), blame assignment (Miller & Gunasegaram, 1990; N’gbala &
Branscombe, 1995), victim compensation (Macrae, 1992; Macrae & Milne, 1992; Miller &
McFarland, 1986; Turley, Sanna, Reiter, 1995), moods (Roese, 1994), regret (Gilovich &
Medvec, 1994; Landman, 1987; Mandel, 2003), shame and guilt (Mandel, 2003; Niedenthal,
Tangney, & Gavanski, 1994), and happiness (Medvic, Madey, & Gilovich, 1995).

Past research has also examined factors that lead to the generation of different types
of counterfactuals, including perceived control (Markman, Gavanski, Sherman, & McMullen,
1995; Roese & Olson, 1995c), repeatability (Markman et al., 1993), mood (Sanna, Turley-
Ames, & Meier, 1999), self-esteem (Roese & Olson, 1993a; Sanna et al., 1999), regulatory
focus (Roese, Hur, & Pennigton, 1999), pessimism and optimism (Sanna, 1996), expectancy
violation (Sanna & Turley, 1996), normativeness of the outcome (Miller & McFarland, 1986;
The current research examines whether the motivation to feel better about the self in the face of stressful life events leads to a greater likelihood of downward than upward counterfactuals.

The Functional Theory of Counterfactual Thinking

One widely supported view of counterfactual thinking is that counterfactuals can serve both affective and preparative functions (e.g., Roese, 1994; Taylor & Schneider, 1989). According to this functional theory of counterfactual thinking, upward counterfactuals serve a preparative (also referred to as self-improvement) function and allow individuals to prepare for the future by providing information about how to improve. Downward counterfactuals provide what has been referred to as an affective function (also referred to as self-enhancement) by allowing individuals to feel better by comparison to worse-off simulations of what might have occurred (Johnson & Sherman, 1990; Markman et al., 1993; Roese, 1994; Roese & Olson, 1995b, 1995c). Evidence for the affective function of counterfactuals has been demonstrated in laboratory studies in which those instructed to generate downward counterfactuals exhibit more positive affect than those instructed to generate upward counterfactuals (e.g., Roese, 1994). The preparative function of counterfactuals has also been demonstrated in past research (e.g., Markman et al., 1993; Roese, 1994; Nasco & Marsh, 1999). In one study, for example, Markman and colleagues (1993) had participants play a computer simulated blackjack game in which the outcome was a win, a loss, or neutral. Consistent with the notion that upward counterfactuals serve a preparative function, participants generated the most upward counterfactuals after failure and when the task was
repeatable. In contrast, after experiencing success, participants generated more downward than upward counterfactuals.

The finding that upward counterfactuals are more likely to be generated than downward counterfactuals in response to negatively valenced events is well represented in the research literature. In fact, a review of the literature led Roese (1997) to suggest that “[a]lthough participants induced to generate downward counterfactuals report more positive affect than those generating upward or no counterfactual thoughts..., individuals seem to generate downward counterfactuals spontaneously only rarely” (p. 134). Although there are factors that moderate the degree to which this is the case, people have been shown to be more likely to generate upward than downward counterfactuals in response to manipulated failure on laboratory tasks (Markman, et al., 1993; Roese & Hur, 1997; Roese & Olson, 1997), recalled academic setbacks (Mandel, 2003) and other negative life events (Roese & Olson, 1997), poor performance on academic tests (Nasco & Marsh, 1999), vignettes of negative life occurrences (Galinsky & Moskowitz, 2000, Roese, 1995c; Roese & Hur, 1997; Roese & Olson, 1997), consumer decisions with negative outcomes (Tsiros & Mittal, 2000), losses in athletic settings (Grieve, Houston, Dupuis, & Eddy, 1999), negative affective states (Roese, 1997; Roese & Hur, 1997; Sanna & Turley, 1996; Sanna et al., 1999), and more traumatic life experiences (Davis & Lehman, 1995; Davis, Lehman, Silver, Wortman, & Ellard, 1996; Davis, Lehman, Wortman, Silver, & Thompson, 1995; see Roese, 1997; Roese & Olson, 1997; Roese, Sanna, & Galinsky, in press for discussions of how negative affect activates upward counterfactual thinking). 1

For example, in one study (Roese & Olson, 1995c; Experiment 1), participants were asked to read a scenario describing four events that preceded a target taking an exam on
which the target either failed or excelled. In addition, whether or not the target had control over the antecedent events was manipulated. Participants were asked to report counterfactual thoughts regarding how things might have been different. The results revealed that upward counterfactuals were more frequently generated after the target had failed rather than excelled on the exam. Furthermore, those who responded to a negative outcome and believed the antecedents were controllable generated the most counterfactual thoughts, the majority of which were upward counterfactuals. The most common finding then, is that negative affect and negatively valenced events lead to the generation of more upward than downward counterfactuals. In contrast, the literature suggests that downward counterfactuals are more commonly generated in response to positive than negative events (e.g., Markman, et al., 1993; Sanna et al., 1999).

It has been suggested that because negative affect serves as a signal to the organism that there is some threat or problem that needs to be addressed (e.g., Schwartz, 1990; Schwartz & Bless, 1991), cognitive resources that may help deal with the potential threat are mobilized (Taylor, 1991). According to Roese and his colleagues (1997; Roese & Hur, 1997; Roese & Olson, 1997; see also, Roese et al., in press), upward counterfactuals may be one way in which people mobilize their cognitive defenses in response to negative moods. For example, upward counterfactuals may provide information about how a negative outcome might have been avoided and may also provide information regarding how to undertake actions to deal with the threat, or similar threats in the future. In support of this notion, Mandel and Lehman (1996) found that upward counterfactual thoughts in response to negatively valenced scenarios more closely paralleled preventability ascriptions (e.g., thoughts about how the event could have been avoided) than causal ascriptions. According to
Roese (1997), it is this function of upward counterfactuals that leads to their greater activation in response to negative, rather than positive, affect. In the current set of studies, I examine whether people might in fact generate more downward than upward counterfactuals in response to stressful life events when they are motivated to make themselves feel better.²

Thus, the most common association between antecedent event valence and counterfactual direction is one of mood congruency (for reviews of mood congruency in memory and social judgment see Bower, 1981, 1991; Forgas, 1995, 2000, 2001; Schwarz & Clore, 1996), whereby positive moods (and positive events) are associated with downward counterfactual thoughts, and negative moods (and negative events) are associated with upward counterfactual thoughts. This pattern mirrors what the research on the relation between moods and cognitions typically finds (e.g., Bower, 1991). The current studies build upon past research by examining whether people can also demonstrate mood incongruency effects, whereby they are more likely to generate downward than upward counterfactual thoughts in response to negative life events. In support of this proposition, an emerging line of research suggests that cognitions are not always congruent with moods. For instance, although moods may automatically prime congruent cognitions, people may also be motivated to recruit positive thoughts in response to negative events in order to repair negative moods (e.g., Erber & Wang Erber, 1994; Parrott & Sabini, 1990). For example, those in negative moods have been shown to demonstrate mood incongruency effects by recruiting positive memories (McFarland & Buehler, 1997, 1998; Parrott & Sabini, 1990; Smith & Petty, 1995), which may represent attempts to repair negative moods. The question, then, is can people similarly generate downward counterfactuals in response to negative life events when they are particularly motivated to alleviate negative affect and to ameliorate
threats to the self?

*Counterfactual Thinking in Response to Stressful Life Events*

It has been suggested that mental simulations (a broader term that includes not only mental simulations of hypothetical alternatives to reality, but also simulations of past and future events) may serve both problem solving and emotion regulation functions (Taylor & Schneider, 1989). Other researchers have specifically discussed the notion that *counterfactuals* may serve as a proactive coping strategy, whereby the individual learns strategies to prevent negative outcomes in the future, and a reactive coping strategy, whereby the individual regulates negative emotions (Gleicher et al., 1995). Similarly, researchers in the field of stress and coping often distinguish between two general types of coping efforts: Problem-focused coping and emotion-focused coping (Folkman & Lazarus, 1980; Pearlin & Schooler, 1978). Problem-focused coping involves efforts to do something constructive about the situation, whereas emotion-focused coping involves regulating the emotional consequences of a stressful event. It has been theorized that upward counterfactual thinking may represent a problem-focused coping strategy, in which the individual 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, on the other hand, may represent emotion-focused coping, whereby negative mood states are alleviated by comparison to a simulated alternative that makes one’s true state of affairs seem not so bad by comparison (Kasimatis & Wells, 1995; Roese, 1994; see also Taylor, Wood, & Lichtman, 1983). However, to date there has been little evidence of a natural tendency to engage in downward counterfactual thinking as a coping strategy, nor has it been demonstrated that individuals may do this in order to repair negative moods or attenuate threats to the self.
Past research on stressful life events and counterfactual thinking has largely focused on the role of upward counterfactuals (Davis & Lehman, 1995; Davis et al., 1996; Davis et al., 1995; see Davis, 2001). For example, those coping with traumatic events such as rape may attempt to mentally undo outcomes that were ultimately not within the individual’s control (Janoff-Bulman, 1979); a tendency that is associated with feelings of guilt and shame. In another telling example, Davis, Lehman, and their colleagues (Davis & Lehman, 1995; Davis et al., 1995) examined responses to highly stressful events such as the loss of a loved one in a motor vehicle accident or the loss of a child to Sudden Infant Death Syndrome. Respondents commonly reported undoing these events in terms of how things could have turned out better (i.e., upward counterfactual thinking). Furthermore, this undoing of past traumatic events was associated with greater psychological distress. Another study (Davis et al., 1996) examined upward counterfactual thoughts (i.e., thinking about how the event could have been avoided) among patients with spinal cord injuries. These researchers found that respondents’ self-implicating upward counterfactual thoughts were related to judgments of personal blame for their injuries, even when other factors such as general causal attributions for the event and foreseeability were statistically controlled. Thus, the research literature largely finds support for upward counterfactual thinking in response to stressful life events and suggests that such thinking is associated with negative psychological consequences.4

Even so, the notion that downward counterfactuals may be recruited after stressful life events is supported by research that finds that victims of rape sometimes mention that they could have been killed or experienced even greater violence than was actually the case (Burgess & Holmstrom, 1979). Such research is suggestive that people may sometimes
naturally generate downward counterfactuals in order to alleviate negative feelings and threats to the self in response to stressful life events.

In sum, it has been theorized that whereas downward counterfactuals may regulate emotion and alleviate negative mood, upward counterfactuals may stimulate coping responses, such as planning a course of action or preparing for similar situations in the future (Boninger, Gleicher, & Strathman, 1994; Gleicher et al., 1995). The majority of evidence on counterfactual thinking in response to stressful life events suggests that people often engage in upward rather than downward counterfactual thinking. An important implication is that although upward counterfactuals may serve a preparatory function, they may often be an ineffective coping response in terms of repairing negative mood states, restoring self-esteem, and promoting other positive psychological consequences (e.g., Davis & Lehman, 1995; see Sherman & McConnell, 1995 for a discussion of this point). Furthermore, in cases that are unlikely repeatable (e.g., among those who are permanently paralyzed due to spinal cord injury) or when the event is uncontrollable, upward counterfactuals may not even confer preparatory benefits (Davis, 2001).

Downward Social Comparisons and Downward Counterfactual Thinking as Coping Strategies

Although the counterfactual literature does not offer much empirical evidence for the use of downward counterfactuals as a coping strategy, the social comparison literature is suggestive in this regard. Social comparison theory posits that people often compare to worse-off others (i.e., downward social comparisons) rather than those who are better off (i.e., upward social comparisons) when they are threatened, experience failure, or are motivated to self-enhance in some way (e.g., Aspinwall & Taylor, 1993; Crocker, Thompson,
According to selective evaluation theory, those who experience stressful events such as natural disasters or illness often employ strategies to make themselves feel comparatively fortunate, thereby mitigating feelings of loss of meaning, perceptions of a lack of control, and threats to self-esteem (Taylor, 1983; Taylor, Wood, & Lichtman, 1983). Thus downward social comparison can serve as a coping strategy, buffering the negative impact of stressful life events (e.g., Gibbons & Gerrard, 1991; Taylor, Wayment, & Carrillo, 1996; Wills 1987; but see Tennen & Affleck, 1997).

Breast cancer patients, for example, were found to recruit a preponderance of downward social comparisons as a coping strategy (Wood, Taylor, & Lichtman, 1985). Although cancer patients may make upward comparisons for informational, affiliative, and inspirational reasons, they often evaluate themselves against worse-off others in ways that ameliorate threats to self-esteem (Taylor & Lobel, 1989; Wood & VanderZee, 1997). Similar evidence for downward comparisons has been found among other threatened individuals such as those with rheumatoid arthritis (Affleck, Tennen, Pfeiffer, Fifield, & Rowe, 1987; Blalock, DeVellis, & DeVellis, 1989; DeVellis et al., 1990), those with spinal cord injuries (Schulz & Decker, 1985), those with AIDS (Taylor, Kemeny, Reed, & Aspinwall, 1991), the mentally retarded (Gibbons, 1985), those who have experienced job disruption (Pearlin, Lieberman, Menaghan, & Mullan, 1981), and poor scorers on tests (Hakmiller, 1966).

There are many parallels to be drawn between social comparison and counterfactual thinking (e.g., Markman et al., 1993, see Olson, Buhrmann & Roese, 2000 for a discussion). It has been noted (Taylor et al., 1983; Wood, 1996) that often the social comparisons people
make are more appropriately thought of as comparisons to counterfactual situations. For example, in one study (Wood et al., 1985) a breast cancer patient stated, “I had just a comparatively small amount of surgery on the breast, and I was so miserable, because it was so painful. How awful it must be for women who have a mastectomy.” In this example, the woman is not only comparing to a worse-off other (i.e., a downward social comparison), but to a worse-off alternative scenario of how things might have been (i.e., a downward counterfactual). In fact, social comparisons are often a subset of counterfactual thinking – by considering how it might be different (i.e., better or worse) to be in another person’s shoes one is often implicitly engaging in downward counterfactual thinking. Thus, it seems likely that downward counterfactual thoughts could be generated in response to stressful life events in much the same way as downward social comparisons are generated.

_Self-Motives and Downward Counterfactual Thinking_

The puzzle is then: Why does the counterfactual thinking literature not find direct evidence for the generation of more downward than upward counterfactuals in response to negative life events when other research suggests that people often do consider possible worse worlds when dealing with stressful events, such as rape, and often engage in downward social comparison when dealing with negative life events? One factor that may lead people to generate downward counterfactuals in response to stressful events, in much the same way as downward social comparisons are invoked, is the degree to which they are motivated to make themselves feel better. Those who are motivated to repair negative moods and to offset threats to the self may be more likely to generate downward than upward counterfactuals. As mentioned earlier, past theorizing on counterfactual thinking has primarily focused on preparative (or self-improvement) and affective (or self-enhancement)
goals as they relate to counterfactual thinking (e.g., Roese, 1994; Sanna, 2000; Taylor & Schneider, 1989). Although little research has demonstrated that people naturally engage in downward counterfactual thinking in order to feel better, it seems likely that downward counterfactual thinking is one strategy that those motivated to repair negative moods and offset threats to the self might engage in. Consider, for example, the athlete who is motivated to improve his mood after a lost game: “It would have been worse if it was a playoff game;” a woman who wants to lift her spirits after discovering that her fiancé was unfaithful: “It could have been worse – we could have gone through with the wedding,” or a cancer patient undergoing chemotherapy who wants to ameliorate threats to self-esteem: “At least I didn’t lose all of my hair.” In such cases individuals are attempting to repair mood and offset threats to the self-concept. It seems likely that when people are motivated to make themselves feel better they will generate more downward than upward counterfactuals.

Recent evidence supports the notion that those who are more motivated to buttress the self will be more likely to engage in downward counterfactual thinking (Schimel, Arndt, Pyszczynski, & Greenberg, 2001). These researchers found that those who believed they were liked intrinsically by others (and who were presumably less motivated to enhance the self) generated more upward counterfactuals (and less downward counterfactuals) than those who did not believe they were liked intrinsically by others. Neither group, however, demonstrated a preference for generating more downward than upward counterfactuals. In the current set of studies I examine whether people can and do recruit more downward than upward counterfactuals when they are motivated to make themselves feel better in the context of coping with stressful life events.
The research of Sanna and colleagues is relevant here (Sanna, Chang, & Meier, 2001; Sanna et al., 1999).\textsuperscript{5} These researchers found that self-motives are related to the generation of upward and downward counterfactual thoughts. For example, Sanna et al. (2001; Study 1) had participants engage in a word association (Remote Associates) task in the laboratory and then view either positive mood or negative mood inducing movie clips. Participants were then asked to rate various upward and downward counterfactual statements in a computer task, while keeping particular self-motives (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. However, these studies involved a Remote Associates Test in the laboratory to which participants responded to upward and downward counterfactual statements. The current set of studies builds upon this past research by demonstrating (a) that people do actively \textit{generate} more downward than upward counterfactuals in response to real-life stressful events as well as in response to laboratory tasks, (b) that people can spontaneously (Studies 3 and 4) as well as when prompted generate a majority of downward counterfactuals in response to stressful life events, and (c) that such generation of downward counterfactuals is related to a desire to make the self feel better.

\textit{The Current Research}

I anticipate that people will demonstrate a propensity to generate more downward than upward counterfactuals in response to stressful life events when they are motivated to repair moods or to self-enhance. This is an important phenomenon to demonstrate because although there has been much discussion in the literature of the affective function of
downward counterfactual thinking, to date there is little empirical evidence for the use of downward counterfactuals as a coping strategy or as a means of making the self feel better in response to stressful life events. In addition, because counterfactuals have been demonstrated to be associated with emotions, it seems that they might play an important role in the coping process.

Study 1 reveals that people engage in more downward than upward counterfactual thinking in response to a health-related stressful event – Chronic Fatigue Syndrome. Study 2 reveals that people generate more downward than upward counterfactuals in response to the tragedy of September 11th. In addition, this study provides preliminary evidence that mood-repair motives may be associated with the generation of downward counterfactuals in response to stressful life events. In Studies 3 and 4 I attempt to provide more direct evidence for the role of motives by manipulating them in relation to scenarios of negative life events (Study 3) and the degree of threat that recalled events invoke (Study 4). The results reveal that those who were given the motive to self-enhance generated more downward than upward counterfactuals. However, event severity did not predict the number of counterfactuals generated. Finally, in Study 5 I anticipated and found that those who were given the opportunity to self-affirm generated fewer downward counterfactuals in response to a recalled negative event than those who were not given the opportunity to affirm the self. Furthermore, three of these studies considered individual differences in the desire to self-enhance (based on cultural background and self-construal). As anticipated, I found that European-Canadians (those typically more motivated to enhance the self; Heine, Lehman, Markus, & Kitayama, 1999) were more likely to engage in downward counterfactual thinking than their Asian-Canadian counterparts.
CHAPTER II  Study 1: Counterfactual Thinking and Chronic Fatigue Syndrome

In Study 1 I examined whether people report generating downward counterfactuals with respect to an ongoing health threat. In this study, individuals with Chronic Fatigue Syndrome (CFS) were interviewed about the counterfactual thoughts that they have had regarding their condition. Chronic Fatigue Syndrome is a profound experience that affects all aspects of one’s day-to-day life. This condition is characterized by severe, disabling fatigue and other symptoms such as musculoskeletal pain, sleep disturbance, impaired concentration, and headaches (Reid, Chalder, Cleare, Hotopf, & Wessely, 2000). While I anticipated that participants would report generating both upward and downward counterfactuals, I wondered whether the latter would be more prevalent. Because CFS is chronic and somewhat uncontrollable in nature, it seems likely that an adaptive response would be one of affect regulation and self-enhancement rather than preparation for the future. I also anticipated that upward counterfactuals would be associated with more psychological distress, whereas downward counterfactuals would be associated with less psychological distress. Finally, I examined relations between upward and downward counterfactuals and other emotion-focused and problem-focused coping strategies.

Method

Participants. Participants were recruited in cooperation with an Infectious Diseases specialist and the Myalgic Encephalomyelitis Society of British Columbia (MEBC). Individuals with CFS were either referred by the specialist or chosen randomly from MEBC's pool of active members, and were sent an introductory letter regarding the study. Potential participants were phoned by an MEBC representative to ask if they (1) received the letter, (2)
obtained a CFS diagnosis from a medical professional, and (3) were willing to participate in the study. The researchers were given a list of members who agreed to participate.

Based on various eligibility criteria (e.g., diagnosis with CFS, currently experiencing at least 8 symptoms), 144 potential participants were contacted. A total of 105 people with CFS living in the Greater Vancouver area ultimately participated in the study (overall response rate = 73%). A subset of those (100 people) gave open-ended responses to at least one of the questions regarding counterfactual thinking.

Sample. Much previous research has failed to distinguish between individuals who suffer from CFS and simply chronic fatigue (Dutton, 1992). In order to be rigorous in the selection of participants, our sample was selected to include only those who had been diagnosed with CFS by a medical practitioner, who reported the major criterion for CFS (persistent or relapsing fatigue that does not resolve with bed rest and is severe enough to reduce average daily activity by 50%), and who reported at least eight additional symptom criteria.

The sample was predominantly Caucasian (96%) and the remaining respondents were Asian (2%), Black (1%), and East Indian (1%). There were more females (88%) than males. Past research indicates that women contract CFS at a greater rate than men (estimates range from 1.5 to 5 times that of men; Feiden, 1990; Harvey, 1989; Komaroff & Buchwald, 1991; Wessely, 1995). The sample had an average of 14.7 years of education, a mean age of 47, and a mean personal income of $19,000.

Procedure. The interview was developed to assess key constructs such as counterfactual thinking, psychological adjustment, social support, causal attributions, and
meaning. The items of interest here are the questions regarding upward and downward counterfactual thinking (Appendix B). Specifically, respondents were asked:

People with CFS sometimes think about how things might have turned out differently. In some instances, they may think about how things may have turned out better. For example, they might think, “If only something had been different, I might not have become ill, or things might not have been so bad.” Over the past month or so, have you ever had thoughts of how things might have turned out better?

If the answer to this question was “no,” they were then asked: “Since getting CFS, have you ever had thoughts about how things might have turned out better?” Finally, participants were asked to describe their upward counterfactual thoughts: “Please tell me what thoughts you’ve had about how things might have turned out “better.”

Participants were then asked a parallel series of questions regarding downward counterfactual thinking:

People with CFS sometimes think about how things might have turned out differently. In some instances, they may think about how things may have turned out worse. For example, they might think, “At least such and such didn’t happen to me” or “Even though I have ME, it would have been worse if such and such had been different.” Over the past month or so, have you ever had thoughts of how things might have turned out worse?

Once again, if the answer to this question was “no,” they were then asked: “Since getting CFS, have you ever had thoughts about how things might have turned out worse?” Finally, participants were asked to describe their downward counterfactual thoughts: “Please tell me what thoughts you’ve had about how things might have turned out “worse.”
Respondents were asked for permission to tape-record the interviews in order to avoid any loss of information, and to ensure that the interviews did not take longer than necessary. All of the responses were then transcribed. A coding scheme was developed to determine: (a) whether people generated more downward than upward counterfactual thoughts in response to chronic fatigue syndrome and (b) the types of domains (e.g., family, finances) people tended to make upward and downward counterfactuals about.

Participants also completed various questionnaires. As measures of psychological adjustment, respondents completed two subscales of the Brief Symptom Inventory (BSI; Derogatis, 1975; Derogatis & Melisaratos, 1983): depression (e.g., “feeling lonely,” “feeling no interest in things”) and anxiety (e.g., “feeling fearful,” “feeling tense or keyed up”). These items were completed on scales ranging from 1 (not at all) to 5 (extremely). Participants also completed a 5-item measure of ruminative thoughts adapted from Trapnell and Campbell’s (1999) six-item scale: “I always seem to be ’re-hashing’ in my mind recent things I’ve said or done,” “I don’t waste time re-thinking things that are over and done with (reverse scored),” “Long after an argument or disagreement is over, my thoughts keep going back to what happened,” “I tend to ’ruminate’ or dwell on things that happen to me for a really long time afterward,” and “Often I’m playing back in my mind how I acted in a past situation.” These items were reported on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Finally, participants completed a brief 32-item revised Ways of Coping Checklist (WOCC; Folkman & Lazarus, 1985). The WOCC is one of the most widely used self-reports of coping and is based on the Lazarus and Folkman (1984) framework. The brief version of the WOCC was created by using the top four loading items on each subscale (Folkman, Lazarus,
Dunkel-Schetter, DeLongis, & Gruen, 1986). The subscales include confrontative coping (e.g., "stood my ground and fought for what I wanted"), distancing (e.g., "went on as if nothing had happened"), self-control (e.g., "tried to keep my feelings to myself"), seeking social support (e.g., "talked with someone to find out more about the situation"), accepting responsibility (e.g., "realized I brought the problem on myself"), escape/avoidance (e.g., "wished the situation would go away or somehow be over with"), planful problem solving ("I made a plan of action and followed it"), and positive reappraisal (e.g., "changed or grew as a person in a good way").

I anticipated that those with CFS would report both upward and downward counterfactuals, but more of the latter. I also anticipated that downward counterfactual thinking would be negatively associated with psychological symptoms, whereas upward counterfactual thinking would be positively associated with psychological symptoms. If downward counterfactuals serve as a coping strategy to make the self feel better, such thoughts may be associated with better psychological outcomes.

In light of the proposed role of counterfactual thinking in coping (i.e., that upward counterfactuals may serve as a problem-focused coping strategy, whereas downward counterfactuals may serve as an emotion-focused coping strategy), Kasimatis and Wells (1995) suggested that emotion-focused strategies such as positive reappraisal should be positively related to the generation of downward counterfactuals and negatively related to upward counterfactuals. Problem-focused coping strategies such as planful problem solving may be positively associated with upward counterfactuals and negatively associated with downward counterfactuals. Thus, I expected that upward counterfactual thinking would be associated with problem-focused coping strategies such as confrontative coping and planful
problem solving. Because downward counterfactual thinking may be associated with attempts to repair negative moods and to ward off threats to the self, I anticipated that such thoughts would be associated with emotion-focused strategies such as positive reappraisal and seeking social support.  

Results

**Upward and downward counterfactual thinking.** In order to present an overall picture of counterfactual thinking, the items assessing whether people had counterfactual thoughts “over the past month or so” and “since getting CFS” were combined for both upward and downward counterfactuals. The results revealed that 77% of respondents reported having at least one upward counterfactual thought and 81% reported having at least one downward counterfactual thought.

In order to examine the relative frequency of these counterfactual thoughts, participants’ open-ended responses were coded by two independent raters (who were blind to the hypotheses) and any disagreements between raters were resolved through discussion. Excellent inter-rater reliability was observed for the number of upward, \( r = .92, p < .0001 \), and downward counterfactuals, \( r = .97, p < .0001 \). A paired-samples t-test, conducted on those who generated at least one downward and one upward counterfactual, indicated that people generated more downward \((M = 2.87, SD = 1.87)\) than upward \((M = 2.06, SD = 1.55)\) counterfactuals, \( t(62) = 2.83, p < .01 \) (see Figure 1). When selecting those who generated at least one upward or downward counterfactual participants also generated more downward \((M = 2.29, SD = 1.97)\) than upward \((M = 1.77, SD = 1.59)\) counterfactuals, \( t(99) = 2.03, p < .05 \).

When reporting upward counterfactuals, respondents mentioned health-related issues (43%), lifestyle (41.8%), finances and career (36.7%), relationships with other people
(26.6%), their own attitude (8.9%), and other things (1.3%). When reporting downward counterfactuals, respondents mentioned health-related issues (80.8%), finances and career (24.4%), relationships with other people (17.9%), lifestyle (11.5%), their own attitude (9.0%), and other things (1.3%). Thus downward counterfactuals seemed to counter negative circumstances in a similar, health-related domain. I examined in greater detail reports of how health-related factors could have turned out differently by coding for whether people mutated the CFS itself (or its antecedents), the consequences of CFS, or other health problems. Among those who generated upward counterfactuals regarding health, 70.6% mentioned CFS itself (e.g., “I've thought about how life would be better if I didn’t have it”), 44.1% mentioned the consequences of CFS (e.g., “I would be stronger if I wasn’t ill”) and no one mentioned other illnesses or health problems. Among those who reported downward health-related counterfactuals not one person mentioned the CFS itself. Instead, people generated downward counterfactuals regarding the consequences of CFS (38.1%) and other health problems (84.1%). Specifically, respondents said things such as: “At least it isn’t life threatening,” and “If I had cancer, I think I would be in a worse position than I am now.” In terms of health issues, those making upward counterfactuals considered the way their CFS could be better, whereas those making downward counterfactuals tended to think about other health conditions that could have made things worse, rather than the CFS itself. Thus people were adaptive and flexible in their generation of downward counterfactuals. Even if they didn’t mention how their CFS could be worse, people were still able to generate worse alternatives by thinking about other health conditions that could have been worse.

It is noteworthy that whereas none of the upward counterfactuals generated were in the form of social comparisons, 40.7% of the downward counterfactuals included at least one
downward social comparison. For example, respondents made statements such as: "I do see people who are worse off, and I thank God that's not happening to me" and "I ran into a woman that I used to know and she's only got a few months left to live, so at least it isn't cancer. It's not life threatening...It could have been worse." Many of the health-related downward counterfactuals concerned how things could have been worse compared to other people.

**Counterfactual thinking and psychological distress.** Anxiety ($\alpha = .84$) was marginally correlated with generating upward counterfactuals, $r(73) = .19, p < .15$, but was not correlated with generating downward counterfactuals, $r(73) = .01, n.s.$ Depression ($\alpha = .84$) was non-significantly correlated with upward, $r(73) = .17, p < .22$, but not downward, $r(73) = -.06, n.s.$ counterfactuals. Whereas engaging in upward counterfactual thinking was unrelated to rumination ($\alpha = .84$), $r(73) = -.05, n.s.$, downward counterfactual thinking was negatively correlated with rumination, $r(73) = -.28, p < .02$.

**Counterfactual thinking and coping strategies.** I anticipated that problem-focused coping strategies would be associated with upward counterfactual thinking, whereas emotion-focused coping strategies (particularly those aimed at improving mood and repairing threats to the self) would be associated with downward counterfactual thinking. The pattern of correlations suggests that planful problem solving, $r(63) = .31$, and confrontive coping, $r(63) = .31$, were positively correlated with the number of upward counterfactuals generated, although these correlations are not significant when correcting for family-wise error rates (refer to Table 1). Accepting responsibility was also positively correlated with the number of upward counterfactuals, $r(62) = .27$. Although at first glance accepting responsibility may not seem like a problem-focused coping strategy, examination of the items (e.g., "made a
promise to myself that things would be different next time” and “realized I brought the problem on myself”) suggests that perhaps taking responsibility for the problem is a first step in planning to do something about it. Seeking social support, $r(63) = .29$, and positive reappraisal, $r(59) = .22$, were related to downward counterfactual thinking, but once again the correlations were not significant when taking family-wise error into account.

Discussion

The results of Study 1 provide preliminary evidence that people can and do generate more downward than upward counterfactuals in response to stressful life events. Although not directly assessed in this study, it may be the case that because CFS is chronic and uncontrollable, those with CFS may be more motivated to regulate affect and reduce threats to the self than to prepare for the future. In Studies 2, 3, 4, & 5, I examine the role of the desire to make the self feel better in counterfactual thinking in more detail.
CHAPTER III  Study 2: Counterfactual Thinking in Response to September 11th

Study 1 revealed that participants generated more downward than upward counterfactuals in response to CFS. As noted earlier, it seems plausible that, because CFS is chronic and uncontrollable, those with CFS are more motivated to regulate affect and reduce threats to the self than to prepare for the future. The purpose of Study 2 was to investigate whether people generate more downward than upward counterfactuals in response to a stressful event of a different nature, and whether the desire to make the self feel better is associated with the generation of downward counterfactuals. Study 2 examined responses to a more acute negative event – the September 11th attacks on the United States. Although the respondents were not directly affected by this event, it is no overstatement to say that these events had a profound effect on people across North America and the rest of the world. It seems likely that individuals needed some way to deal with the events of September 11th, and that engaging in counterfactual thinking might be one such response. Participants were asked about the upward and downward counterfactual thoughts they generated in response to the events of September 11th. I was interested to see whether people would generate more downward than upward counterfactuals in response to these events. It seemed likely that people would generate downward counterfactuals in response to this event, particularly when they were motivated to make themselves feel better.

Method

Participants. Twenty-eight undergraduates (19 females and 9 males; mean age 23 years) participated as part of a class exercise. They were fully debriefed at the end of the study. This was a within-subjects design in which all participants were asked to report both upward and downward counterfactuals. Seventy-nine percent were of Western European
decent, 7% were of East Indian decent, and the rest (14%) were of other ethnic backgrounds (e.g., East Asian, Native Canadian, and Hispanic).

**Materials and procedure.** The data were collected exactly one week after September 11, 2001. Participants first completed items assessing how upset they were by the events and how relevant they thought the events were to their own lives. Participants were asked: “When you think about the recent and horrific terrorist attacks on the US, including the planes that crashed into the World Trade Center and the Pentagon and the plane that crashed in Pennsylvania, how upset does it make you?” [not at all upset (1) to extremely upset (9)] and “How relevant to your own life do you find the events that transpired on September 11th?” [extremely irrelevant (1) to extremely relevant (9)]. Participants then read:

Sometimes when negative things happen, people have thoughts of how things might have turned out differently. Sometimes these thoughts are about how things could have been better (“if only…”) and sometimes these thoughts are about how things could have been worse (“at least…”). For example, a person who was recently in a car accident might tell him/herself “if only I hadn’t been speeding, things would have turned out better” or “at least no one was seriously injured, or things would have been worse.”

Participants were then asked to recall, in counterbalanced order, the upward and downward counterfactual thoughts they had during the past week. Participants read: “Please recall your thoughts during the past week about the tragic events last Tuesday, September 11th. You may have had thoughts about how things could have been better (“if only…”) [worse (“at least”)]. If you had any such thoughts during the past week please list them below.” Participants then wrote down any upward and downward counterfactuals. This
procedure, including the wording (e.g., “if only…” and “at least…”), was modeled after that used successfully in past counterfactual research (e.g., Roese 1994; Sanna et al., 1999; Schimel et al., 2001). After writing down each set of counterfactual thoughts, participants read “Why do you think you had these thoughts? For example, you may have had such thoughts to make yourself feel better about the situation, to think about what could be done in the future, or you may have not consciously wanted to have such thoughts.” Participants were given the opportunity to respond to this question in an open-ended format.

Results

Coding of counterfactuals. Two independent raters, who were blind to the hypotheses, coded the number and content of counterfactual thoughts. Disagreements between the raters were resolved through discussion. Excellent inter-rater reliability was observed for number of upward counterfactuals, \( r = 1.00, p < .0001 \) and number of downward counterfactuals, \( r = .96, p < .0001 \). For content of upward counterfactuals the inter-rater agreement ranged from \( \kappa = .78 \) to \( \kappa = .89 \). The content of upward counterfactuals reported by participants included: that more precautions could have been taken (37%; e.g., “tighter security in the airports,” “sealed-off cockpit”), that the terrorists could have failed (14.8%), America’s past actions (11.1%), measures taken after the first plane crashed into the World Trade Center (11.1%; e.g., “evacuating the second tower sooner”), and other (11.1%; e.g., “if only the media had reduced their coverage,” “dispositions of the terrorists”). For content of downward counterfactuals the inter-rater agreement ranged from \( \kappa = .88 \) to \( \kappa = .92 \). The topics reported for downward counterfactuals included: more people could have been killed (44.4%), one of the planes could have crashed somewhere worse (29.6%), the attack itself could have been worse (25.9%; e.g., “the attack could have been nuclear,
biological, or chemical”), it could have happened to someone I know or love (22.2%), and other (7.4%).

As for reasons why downward counterfactuals were generated, the inter-rater agreement ranged from $\kappa = .88$ to $\kappa = 1.00$. Participants reported engaging in downward counterfactual thinking for affect regulation (50.0%; “e.g., to make myself feel better,” “in order to cope”), for preparative reasons (10.7; “to think what I would do,”), because of ease of imagining a worse scenario (10.7%), and 7.1% reported not wanting to have these thoughts. As for reasons why upward counterfactuals were generated, the inter-rater agreement ranged from $\kappa = .87$ to $\kappa = 1.00$. Participants mentioned affect regulation (7.1%; e.g., to make myself feel better), preparative motives (36.4%; “to think what I would do,” “so that we could be more prepared in the future”), the ease of imagining these alternatives (13.6%), the negativity of the situation (16.0%; “because it was such a horrific event” “because it is so sad to hear of other people dying”), and 4.5% mentioned not wanting to have such thoughts.

Ratings of relevance and severity. Because the purpose of Study 2 was to examine people's responses to a highly stressful life event, I wanted to ensure that the event was indeed upsetting and involving for respondents. Participants reported being very upset on average ($M = 7.18$) and feeling that the events were indeed relevant to their lives ($M = 6.36$). Subsequent $t$-tests indicated that both of these averages were significantly higher than the scale midpoints (i.e., 5 on a 9-point scale) for being upset, $t(27) = 7.05, p < .0001$, and for relevance, $t(27) = 3.27, p < .01$.

Reports of upward and downward counterfactual thinking. A mixed-model ANOVA was conducted using counterfactual direction as a repeated measure and counterbalancing as
a between-subjects factor. The results revealed no main effect for counterbalancing, $F(1, 26) = .05, n.s., \eta^2 = .002$, and no interaction between counterbalancing and counterfactual direction, $F(1, 26) = .04, n.s., \eta^2 = .002$. Importantly, the main effect for counterfactual direction was significant, indicating that participants reported a greater number of downward ($M = 1.86; SD = 1.17$) than upward ($M = 1.14; SD = 0.93$) counterfactuals, $F(1, 26) = 8.56, p < .01, \eta^2 = .25$ (see Figure 2).

Interestingly, a higher proportion of participants reported affect regulation motives when making downward counterfactuals (50.0%) than when making upward counterfactuals (7.1%), $\chi^2(1)= 12.60, p < .0001$. In contrast, people were more likely to cite preparative motives for engaging in upward counterfactuals (36.4%) than downward counterfactuals (7.1%), $\chi^2(1)= 4.16, p < .05$. In addition, among those who generated downward counterfactuals, those who reported being motivated by affect regulation generated significantly more downward counterfactuals ($M = 2.43; SD = 1.09$) than those who did not report being motivated by affect regulation ($M = 1.29; SD = 0.99$), $t(22) = 2.90, p < .01, \eta^2 = .32$ (refer to Figure 3). Among those who reported upward counterfactuals, those who reported preparative motives generated more upward counterfactuals ($M = 2.14; SD = 0.69$) than those who reported no such motives ($M = 1.33; SD = 0.50$), $t(17) = 2.99, p < .01, \eta^2 = .19$ (refer to Figure 4).

Discussion

The results of Study 2, which run counter to those found in past research, suggest that people can and do generate more downward than upward counterfactuals. The tendency to generate downward counterfactuals was related to the desire to regulate affect. It may be the case that this particular stressful life event led to a desire to make the self feel better, and thus
was associated with the generation of more downward than upward counterfactuals. One key difference between past research and Studies 1 and 2 is that many past studies found a preponderance of upward counterfactuals in response to mildly negative events such as problems with a course at school (e.g., Mandel, 2003), scenarios (e.g., Roese & Hur, 1997), or laboratory tasks (e.g., Markman et al., 1993). The first 2 studies in this dissertation, in contrast, examined responses to more severe and traumatic events. Such events are more likely to have encouraged self-enhancement or affective motives, whereas previous studies were more likely to have encouraged self-improvement or preparative motives.

Another reason why the findings from the current studies may diverge from past research is that the events in Studies 1 and 2 are not only more traumatic, they are also less controllable, less common, and less repeatable than the events examined in much of the earlier research. The affective benefits of generating downward counterfactuals are likely more appreciable when the event is uncontrollable, rarer, and not likely repeatable, as well as when the individual is highly motivated to regulate negative affect and protect against threats to the self. Indeed, past research has found that controllability (Roese & Olson, 1995) and repeatability (Markman et al., 1993) are factors that moderate the number of upward and downward counterfactuals generated. It seems likely that the stressors in Studies 1 and 2 may encourage the motives of self-enhancement and mood-repair, rather than self-improvement.

Clearly the stressors examined in Studies 1 and 2 are unique. It is possible that there is something special about these 2 stressors that make them particularly amenable to downward counterfactual thoughts (besides the fact that they may have led to a desire to make the self feel better), and that experiencing other severe events would not result in as many downward counterfactuals. While it is true that each stressor has unique characteristics,
it is also true that practically all stressors can be thought of in terms of how things could have been worse. In fact, selective evaluation theory (Taylor et al., 1983) proposes that those who experience traumatic life events are particularly motivated to construe their situation in ways that are self-enhancing, and do so by selectively evaluating their situation and themselves in ways that allow them to feel positively about the self. This theory proposes that people may make selectively downward social comparisons, focus on their positive attributes, manufacture normative standards of adjustment that make their own situation seem positive, create hypothetical, worse worlds, and construe benefit from the victimizing event. In one striking example, Taylor et al. (1983) reported that cancer patients were remarkably flexible in how they used social comparison standards to feel better. Women with breast cancer seemed quite adept at selectively choosing social comparison dimensions that allowed them to self-enhance. In fact, those who couldn’t find such a dimension to compare on were able to construct imaginary norms for comparison in ways that made them feel better. For example, breast cancer patients often imagined hypothetical others who were coping poorly or whose spouses had left them. The researchers pointed out that a spouse leaving a patient with breast cancer is, in fact, very unlikely and suggested that this is one way that those who experience traumatic life events minimize their victim status and feel better about the self. It seems that simulating worse possible worlds may be a response to many different stressful life events.

Because Studies 1 and 2 do not allow for causal claims about the relationship between the motive to make the self feel better and counterfactual thinking, in Studies 3, 4, and 5 I test, through the use of more controlled laboratory studies, whether a desire to make the self feel better leads to the generation of more downward than upward counterfactuals.
Chapter IV: Study 3: Motives and Counterfactual Thinking

Studies 1 and 2 revealed that participants reported a greater number of downward than upward counterfactuals, and many participants reported having affect regulation motives for engaging in downward counterfactual thinking (Study 2). Study 3 extends the findings of Studies 1 and 2 in three important ways. First, both spontaneous counterfactuals, as well as those generated when people are explicitly prompted for counterfactuals, will be examined. Past research has most commonly examined the generation of upward and downward counterfactual thoughts by explicitly prompting for thought-listings of upward and downward counterfactuals (e.g., Mandel, 2003; Mandel & Lehman, 1996; Roese 1994; Roese & Olson, 1997; Sanna, 1997; Sanna & Meier, 2000; Sanna et al., 1998; Sanna et al., 1999; Schimel et al., 2001) or having participants respond to counterfactual statements (Davis et al., 1996; Sanna et al., 2001). In one of the few exceptions, Roese and Olson (1995c; see also Roese & Hur, 1997; Roese & Olson, 1997; Sanna & Turley, 1996) had participants report their spontaneous thoughts. These researchers asked participants to record their spontaneous thoughts in response to negatively valenced scenarios in a way that “would cheer you up.” In addition, these researchers manipulated whether the event in the scenarios was controllable or uncontrollable. The results revealed that downward counterfactuals were more frequent when the outcome was perceived to be uncontrollable than controllable, whereas upward expectancies (i.e., thoughts about how this might turn out better in the future) were more frequent following controllable than uncontrollable outcomes. Interestingly, this is one of the few studies to find only a small proportion of upward counterfactuals generated in response to negatively valenced events. It is difficult to tell, however, whether a preference for downward over upward counterfactuals occurred because of the spontaneous measure used,
or because of a desire to make the self feel better (i.e., there was no comparison to prompted counterfactuals and there was no comparison to self-improvement motives or no motives). In Study 3, I included measures of both prompted and spontaneous counterfactuals (modeled after those used by Roese, 1994 and Roese & Olson, 1995c, respectively) to examine whether those who are motivated to make themselves feel better would generate more downward than upward counterfactuals (in comparison to those motivated by self-improvement or those with no motives).

It is important to note that it is likely that people will generate less spontaneous than prompted counterfactuals (see Roese & Olson, 1995c). This is because people’s spontaneous responses to negative events will likely include a variety of responses along with counterfactual thoughts. For example, when faced with stressful life events people are often motivated to find meaning in the experience, to regain a sense of mastery over the event and over one’s life, and to restore self-esteem (Taylor, Wood, & Lichtman, 1983). Thus, although one response to negative events may be counterfactual thinking, people may also spontaneously report a variety of other psychological responses to negative life events. Thus, although spontaneous and prompted counterfactuals thoughts may differ in frequency this is because participants may spontaneously report many different reactions, and they are only given limited space with which to do so.

Participants’ motives will be manipulated (self-enhancement, self-improvement, or no motive instructions) to examine whether motives influence the generation of upward and downward counterfactuals. In past research (e.g., Markman et al., 1993), the preparative nature of upward counterfactuals and the affective nature of downward counterfactuals has often been indirectly inferred, assuming the presence of self-improvement (preparative) and
self-enhancement (affective) motives based on aspects of the situation (e.g., by observing that people sought more upward counterfactuals after failure and when the task was repeatable). Study 3 has the potential to provide further support for the functions counterfactuals serve by directly manipulating motives. I anticipated that those given a self-enhancement motive would generate more downward counterfactuals, whereas those given a self-improvement motive would generate more upward counterfactuals, both spontaneously and when explicitly prompted to generate counterfactuals.

An additional goal of Study 3 was to examine relations between cultural background and counterfactual thinking. Whereas research with Western samples suggests that people selectively interpret, filter, and distort information in ways that are self-enhancing (e.g., Taylor & Brown, 1988), recent research suggests that those from Eastern cultural backgrounds are not as motivated by self-enhancement (e.g., Heine & Lehman, 1995, 1997, 1999; Heine, Lehman, Markus, & Kitayama, 1999; Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997). In comparison to those from Western backgrounds, those from Eastern backgrounds tend to be more self-critical (Heine, Kitayama, & Lehman, 2001; Heine, Takata, & Lehman, 2000; cf. Chang, Sanna, & Asakawa, 2001), and are especially motivated by self-improvement (Heine et al., 2001; White & Lehman, 2003). As such, I anticipated that European-Canadians would be more likely to recruit downward counterfactuals than Asian-Canadians, whereas Asian-Canadians might be more prone to generate upward counterfactuals than European-Canadians. Finally, a measure of self-construal was included in this study. Self-construal refers to the degree to which a person construes the self as interconnected with or distinct from those around them. Those from Eastern backgrounds tend to view the self as more interdependent, whereas those from Western backgrounds tend
to view the self as more independent (e.g., Markus & Kitayama, 1991). And in line with the aforementioned cross-cultural differences, those characterized by more independent self-construals tend to be more motivated by self-enhancement than those characterized by more interdependent self-construals (Heine et al., 1999).

Method

Participants. One hundred thirty-eight (106 females and 32 males, mean age = 20.5 years) psychology undergraduates participated in groups of 2 to 4 in exchange for course credit.

Materials and procedure. Participants were asked to read two scenarios and write down their responses to the events. One scenario involved a car accident and the other involved the dissolution of a romantic relationship. These two scenarios were chosen to be both aversive and the types of situations that university students could relate to. The order of presentation of the two scenarios was counterbalanced.11 After reading the first scenario participants were asked to report their spontaneous reactions: “Think about what spontaneous thoughts you would have in response to this situation. Please tell us below the kinds of things you would tell yourself in response to this scenario.” Those in the no-motive condition were given no further instructions. Those in the self-improvement condition further read:

Sometimes we want to think about the situation in a way that makes us learn from the situation. 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. 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*.

Those in the self-enhancement condition read:

Sometimes we want to think about the situation *in a way that makes us feel particularly good about ourselves*. We select the information that makes us feel better and describes the situation in the most positive light. The ability to sometimes describe the situation in this positive way may be important for maintaining a positive self-image and good mental health. On this page we would like you to write down the thoughts that you would have about this situation if you wanted to *lift your spirits* or to *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 wrote down their spontaneous responses to the situation. These reactions were coded for the presence of counterfactual thoughts. On the following page, participants were explicitly prompted for counterfactuals:

When faced with situations such as this, people often have thoughts like “if only...” or “at least...” Sometimes these thoughts can be about things that would have made the situation better ("if only...") and sometimes these thoughts can be about things that would have made the situation worse ("at least..."). For example, a student who does worse than expected on an exam might tell him/herself “if only I had had more time to study, I would have gotten a better grade” or “at least I didn’t fail, it could have been worse.” In the spaces below, please list the thoughts or imaginings you would have about how the situation could have been *either better or worse*. 
Participants were prompted for both upward and downward counterfactuals on the same page, but the order in which these were presented was counterbalanced. Participants in the self-enhancement and the self-improvement conditions were reminded once again of their respective motives. After responding to the first scenario, participants followed the same procedure with the second scenario. Finally, participants completed items assessing cultural background, as well as measures of self-construal (i.e., interdependence and independence, Singelis, 1994) and self-esteem (Rosenberg, 1965). Those high in self-esteem tend to be more motivated by self-enhancement, whereas those low in self-esteem tend to be more motivated by self-protection (e.g., Baumeister, Tice, & Hutton, 1989). The measures of self-construal and self-esteem were completed on 5-point Likert scales.

Results

Coding of counterfactuals and creation of indexes. Two trained coders, blind to the hypotheses, coded for the presence of both upward (e.g., “Things would have turned out better if I hadn’t been in such a rush”) and downward (e.g., “It would have been worse if I was driving faster”) counterfactuals. All disagreements between the coders were resolved through discussion. Good inter-rater reliability was observed for spontaneously reported upward, $r = .97, p < .0001$, and downward, $r = .87, p < .0001$, counterfactuals and for prompted upward, $r = .98, p < .0001$, and downward, $r = .87, p < .0001$, counterfactuals in response to the car accident scenario. As well, good inter-rater reliability was observed for spontaneously reported upward, $r = .84, p < .0001$, and downward, $r = .97, p < .0001$, counterfactuals and for prompted upward, $r = .98, p < .0001$, and downward, $r = .96, p < .0001$, counterfactuals in response to the dissolution of a romantic relationship scenario. Because analyses indicated that scenario version did not qualify any of the results, composite
measures for upward spontaneous, downward spontaneous, upward prompted, and downward prompted counterfactuals were created by adding the number of counterfactuals generated for each scenario and dividing by 2 (see Sanna et al, 1999 for a similar procedure). As Sanna et al. (1999) have noted, finding effects when averaging across scenarios is particularly impressive because this demonstrates that the effects can be found regardless of any moderating effects of event type. The coders also coded for prefactuals, or mental simulations of how events might turn out in the future (Roese & Olson, 1993), because it was found that participants spontaneously reported these, \( r = .96, p < .0001 \). All of the prefactuals reported simulated how future events could turn out better.

**Spontaneous and prompted counterfactual thinking measures.** Not surprisingly, participants generated more upward and downward prompted counterfactuals \( (M_s = 2.39 \) and 2.66, respectively) than upward and downward spontaneous counterfactuals \( (M_s = 0.36 \) and 1.37, respectively). Correlational analyses indicated that prompted and spontaneous downward counterfactuals were significantly correlated with each other, \( r(138) = .43, p < .0001 \), whereas prompted and spontaneous upward counterfactuals were more modestly related to one another, \( r(138) = .18, p < .05 \). Thus, although there are many spontaneous reactions to negative events in addition to counterfactual thinking, it appears that the spontaneous and prompted measures of counterfactual thinking are tapping into similar underlying processes.

**Reports of spontaneous upward and downward counterfactuals.** A 3(motive condition: self-enhancement vs. self-improvement vs. none) \( \times 2(\text{counterfactual direction: upward vs. downward}) \) mixed-model ANOVA using direction of spontaneous counterfactuals as the repeated measure indicated that people *spontaneously* generated more downward \( (M = \)
1.38) than upward counterfactuals (M = 0.35), F(1, 135) = 53.31, p < .0001, \( \eta^2 = .28 \). There was also a significant main effect for motive condition on number of spontaneous counterfactuals, F(2, 135) = 17.06, p < .0001, \( \eta^2 = .2 \), indicating that participants generated more spontaneous counterfactuals in the self-enhancement condition (M = 1.47) than in the self-improvement (M = 0.46) and no motive conditions (M = 0.67). Counterfactual direction also significantly interacted with motive condition for spontaneous counterfactuals, F(2, 135) = 32.48, p < .0001, \( \eta^2 = .33 \) (refer to Table 2). More spontaneous downward counterfactuals were generated by those with self-enhancement motives (M = 2.77) than those with no motives (M = 0.93) and those with self-improvement motives (M = 0.44). More spontaneous upward counterfactuals were generated by those with self-improvement motives (M = 0.48) and those with no motives (M = 0.41) than those with self-enhancement motives (M = 0.17).

Participants also generated more spontaneous upward prefactuals (Roese & Olson, 1993, or upward expectancies; Roese & Olson, 1995c), or thoughts about how things could turn out better in the future, when given a self-improvement motive (M = 1.50) than when given a self-enhancement motive (M = 0.13) or no motive (M = 0.10), F(2, 132) = 41.13, p < .0001, \( \eta^2 = .38 \). This finding is in line with past findings that upward prefactuals may serve a preparatory function and facilitate self-improvement (Sanna, 1998).

**Reports of prompted upward and downward counterfactuals.** A 3(motive condition: self-enhancement vs. self-improvement vs. none) x 2(counterbalancing: upward first vs. downward first) x 2(counterfactual direction: upward vs. downward) mixed-model ANOVA using direction of prompted counterfactuals as the repeated measure was conducted. There was a marginal main effect for counterbalancing, F(1, 132) = 3.04, p < .09, \( \eta^2 = .02 \). Specifically, participants generated somewhat more prompted counterfactuals when they
were asked to generate upward counterfactuals first \((M = 2.69)\) than when they were asked to generate downward counterfactuals first \((M = 2.34)\). However, there was no significant interaction between counterbalancing and counterfactual direction, \(F(1, 132) = .04, n.s., \eta^2 = .000\), between counterbalancing and motive condition, \(F(1, 132) = 1.01, p < .04, \eta^2 = .02\), or between counterbalancing, counterfactual direction, and motive direction, \(F(1, 132) = 1.06, p < .04, \eta^2 = .02\).

There was no significant main effect for counterfactual direction, indicating that similar numbers of prompted upward \((M = 2.38)\) and downward \((M = 2.64)\) counterfactuals, \(F(1, 132) = 2.17, p < .15, \eta^2 = .02\) were generated. There was no significant main effect for motive condition on number of prompted counterfactuals, \(F(2, 132) = .40, n.s., \eta^2 = .01\). However there was a significant interaction between motive condition and counterfactual direction, \(F(2, 132) = 6.61, p < .01, \eta^2 = .10\) (refer to Table 3). Those with self-enhancement motives generated more prompted downward counterfactuals \((M = 3.03)\) than those with self-improvement motives \((M = 2.34)\), and those with no motives \((M = 2.56)\); though planned contrasts indicated this was a marginally significant difference, \(t(132) = 1.70, p < .1\). Finally, those with self-improvement motives \((M = 2.59)\) and those with no motives \((M = 2.73)\) generated more prompted upward counterfactuals than those with self-enhancement motives \((M = 1.83)\).

*Culture and counterfactual thinking.* In order to examine whether there were cultural differences in the generation of upward and downward counterfactuals, Asian-Canadian \((n = 90)\) and European-Canadian \((n = 36)\) participants were selected for analysis.\(^{12}\) Although there were no significant cultural differences in the number of upward and downward spontaneous counterfactuals generated, \(F(1, 124) = 1.01, n.s., \eta^2 = .000\), there were significant cultural
differences in reports of prompted counterfactuals, $F(1, 122) = 4.23, p > .05, \eta^2 = .03$.

Specifically, European-Canadians generated more downward ($M = 3.31; SD = 1.78$) than upward ($M = 2.38; SD = 2.38$) prompted counterfactuals, $t(122) = 2.99, p < .01$, whereas Asian-Canadians generated similar numbers of downward ($M = 2.50; SD = 1.43$) and upward ($M = 2.47; SD = 1.79$) prompted counterfactuals. There were no significant 3-way interactions (culture x motive condition x counterfactual direction) for prompted or spontaneous counterfactuals (both $ps > .5$).

Asian-Canadians scored higher on interdependence ($M = 3.62; SD = 0.42$) than European-Canadians ($M = 3.29; SD = 0.48$), $t(124) = 3.86, p < .0001, \eta^2 = .03$. There were no significant differences in scores of independence between Asian-Canadians ($M = 3.38; SD = 0.51$) and European-Canadians ($M = 3.52; SD = 0.51$), $t(124) = 1.29, p < .2, \eta^2 = .01$. There were significant cultural differences in self-esteem such that European-Canadians reported higher levels of self-esteem ($M = 4.48; SD = 0.76$) than Asian-Canadians ($M = 4.06; SD = 0.79$), $t(124) = 2.72, p < .01, \eta^2 = .06$. However, none of these constructs were significantly correlated with the generation of upward or downward spontaneous or prompted counterfactuals in this study.

Discussion

Study 3 revealed that those given a self-enhancement motive generated more downward than upward counterfactuals. Participants spontaneously generated more downward counterfactuals overall, and those given self-enhancement motives generated the most spontaneous downward counterfactuals. European-Canadians, who are presumably more motivated to self-enhance, generated more downward than upward counterfactuals, whereas Asian-Canadians did not demonstrate this tendency. Taken together, the results of
Study 3 provide support for the notion that those who are motivated by self-enhancement (i.e., those given the motive to self-enhance and those from Western backgrounds) are more likely than their counterparts to generate downward counterfactual thoughts in response to stressful life events.
Chapter V  Study 4: Event Severity and Counterfactual Thinking

The studies thus far provide evidence for the generation of downward counterfactuals in response to stressful life events, particularly when people are motivated to feel better about the self. In Study 4, I further explored the role of the desire to make the self feel better by manipulating the degree of threat experienced by participants. Past research suggests that those who are threatened in some way often are motivated to repair moods and enhance the self (see Roese & Olson, 2003 for a review). For example, people have been observed to enhance the self in response to threat by recruiting downward social comparisons (Brown & Gallagher, 1992; Wills, 1981; Wood et al, 1985), avoiding upward social comparisons (Levine & Green, 1984; Pyszczynski, Greenberg, & LaPrelle, 1985), employing favorable temporal comparisons (McFarland & Alvaro, 2001), derogating outgroups (Crocker, Thompson, McGraw, & Ingerman, 1987), resorting to negative stereotypes (Fein & Spencer, 1997), inflating one’s own self-image (Brown & Smart, 1991; Greenberg & Pyszczynski, 1985), ascribing traits to others in ways that are self-enhancing (Alicke, 1985; Beauregard & Dunning, 1998; Dunning, Leuenberger, & Sherman, 1995), demonstrating false consensus effects (Agostinelli, Sherman, Presson, & Chassin, 1992; Sherman, Presson, & Chassin, 1984), and making self-serving attributions (McCarrey, Edwards, & Rozario, 1982; Miller 1976; see Campbell & Sedikides, 1999 for a meta-analysis). Because increased threat often leads to a tendency to enhance the self, it seems reasonable to predict that people will generate more downward counterfactual thoughts in response to more threatening and traumatic events than in response to more mild negative events.

In order to test this reasoning, in Study 4 degree of threat was manipulated by instructing participants to recall either a threatening negative event or a mildly negative event
(see McFarland & Alvaro, 2001 for a similar procedure with temporal comparisons) and then report their spontaneous thoughts and prompted counterfactuals in response to the event. In addition, I examined whether participants reported consciously recruiting upward and downward counterfactual thoughts, what their motives for recruiting such thoughts were, and whether those who recruited downward counterfactuals reported increased positive (and decreased negative) moods. I anticipated that if downward counterfactual thoughts serve a self-enhancement (affective) function they would be associated with more positive (and less negative) moods and reports of more affective (and less preparative) motives than upward counterfactuals. In addition, I was interested in examining whether downward counterfactuals, which might represent a purposeful attempt to make the self feel better, would be reported as being more effortful than upward counterfactuals. Finally, I once again examined relations between cultural background and counterfactual thinking. I anticipated that European-Canadians would tend to generate more downward than upward counterfactuals, whereas Asian-Canadians would not exhibit this tendency. I further anticipated that these differences would be enhanced when the event was more severe because severe events should increase the desire to make the self feel better.

Method

Participants. Eighty-three participants (73 females and 10 males; mean age = 19.5) took part in this study for course credit.

Materials and procedure. Participants completed this study in groups of 2-4. Participants completed a questionnaire booklet that first asked them to recall a negative event. In the severe event condition they were asked to: "Think back and describe a very negative, stressful, or traumatic event that happened to you (e.g., the loss of a loved one,
being seriously injured, breaking up with a girlfriend/boyfriend).” In the mild event condition participants were asked to “Think back and describe a mildly negative or stressful that happened to you (e.g., having a bad day, getting a lower grade than you expected, having a small argument with another person).” Participants were asked to reflect upon and actively imagine the event and then to describe it in writing. Participants then rated how pleasant the event was, how traumatic the event was, and how stressful the event was on 9-point Likert scales.

In order to allow participants to spontaneously generate counterfactuals they read: “We are particularly interested in the things people tell themselves after different life events. Think about what spontaneous thoughts you had in response to this situation. Please tell us below the kinds of things you told yourself after experiencing this event.” After writing down their spontaneous thoughts about the event, participants were asked specifically about upward and downward counterfactuals. Specifically, participants read one of two prompts (one for upward and one for downward counterfactuals):

When faced with situations such as this, people often have thoughts about how things might have turned out differently. Sometimes these thoughts can be about things that would have made the situation better (worse), and they are about circumstances that are better (worse) than what actually happened. For example, a person telling him/herself about how things might be better (worse) might say things like “If only...,” “I wish...,” “Things would have been better if...,” “I could have done X better,” etc. (“At least...,” “I am glad that X did not happen,” “Things would have been worse if...,” “I could have done X worse,” etc.). 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 upward and downward counterfactual thoughts, participants were asked about what motives they had for generating these counterfactuals:

    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). For example, you may have had such thoughts to make yourself feel better about the situation, to think about what could be done in the future, or you may have not consciously wanted to have such thoughts.

Participants were also asked a series of close-ended items about the counterfactuals they reported. They were asked questions about how effortful their counterfactual thoughts were ["When you originally had these thoughts, did you feel that you effortfully brought these thoughts to mind?", "When you originally had these thoughts, did you feel that these thoughts were automatically (i.e., not voluntarily) brought to mind? (reverse scored)," and "When you originally had these thoughts, did you feel that you consciously brought these thoughts to mind?"]]. Participants were asked whether the counterfactual thoughts were generated to serve affect-regulation functions ("Do you think you had these thoughts to cope with the situation?" and "Do you think you had these thoughts to feel better about the situation?") or to serve preparative functions ("Do you think you had these thoughts to help you improve in the future?" and "Do you think you had these thoughts to learn from what..."
happened?"). All of these items were completed on 7-point Likert scales ranging from 1 (not at all) to 7 (very much so). After reporting counterfactuals, participants were asked to give positive (e.g., happy, pleased, optimistic) and negative (e.g., sad, disappointed, anxious) mood ratings regarding how these counterfactual thoughts made them feel on Likert scales ranging from 1 to 7. The mood items were modeled after the PANAS (Positive Affect and Negative Affect Scales; Watson, Clark, & Tellegen, 1988). After reporting one type of counterfactual (e.g., upward) and completing the closed-ended measures regarding that type of counterfactual, participants completed the same procedure for the second type of counterfactuals (e.g., downward). The order in which participants answered upward and downward counterfactual questions was counterbalanced. Participants then completed measures of cultural background, self-construal (Singelis, 1994), and self-esteem (Rosenberg, 1965).

Results

Coding for counterfactuals. Two trained coders, blind to condition and the hypotheses, coded for upward and downward counterfactuals. All disagreements between the coders were resolved through discussion. Good inter-rater reliability was observed for spontaneously reported upward, \( r = .88, p < .0001 \), and downward, \( r = .70, p < .0001 \), counterfactuals, and for prompted upward, \( r = .91, p < .0001 \), and downward, \( r = .93, p < .0001 \), counterfactuals. Although prefactuals were coded for in this study, few were reported, so this variable is not discussed further. The coders also demonstrated adequate inter-rater agreement for type of event recalled (\( \kappa = .87 \)). Those in the mild event condition recalled events such as: a relationship problem or argument (52.4%), an academic problem (28.6%), injury or illness to a loved one (4.8), injury or illness to the self (2.4), or other (11.9
Those in the severe event condition recalled events such as: a relationship problem or argument (31.7%), loss of a loved one due to bereavement (24.4%), injury or illness to a loved one (17.1%), injury or illness to the self (9.8%), or other (4.9%).

Creation of indexes. Indexes were created for positive (α = .95) and negative (α = .85) moods in response to upward counterfactuals and positive (α = .93) and negative (α = .81) moods in response to downward counterfactuals. In addition, indexes were created for effortfulness of recruiting upward (α = .85) and downward (α = .62) counterfactuals, affect regulation motives for recruiting upward (α = .73) and downward (α = .72) counterfactuals, and preparative motives for recruiting upward (α = .72) and downward (α = .79) counterfactuals.

Manipulation check. Those in the severe event condition reported that the event was more stressful (M = 7.22) than those in the mild event condition (M = 5.98), t(81) = 2.66, p < .01, η² = .08. Those in the severe event condition reported that the event was less pleasant (M = 2.02) than those in the mild event condition (M = 3.29), t(81) = 3.57, p < .01, η² = .14. In addition, those who recalled a severe event reported that the event was more traumatic (M = 6.66) than those in the mild event condition (M = 4.55), t(81) = 4.31, p < .0001, η² = .08.

Spontaneous and prompted counterfactual thinking measures. Once again, participants generated more upward and downward prompted counterfactuals (Ms = 2.32 and 1.72, respectively) than upward and downward spontaneous counterfactuals (Ms = 0.52 and 0.39, respectively). Partial correlations, indicated that downward prompted and spontaneous counterfactuals were significantly correlated with each other, r(82) = .34, p < .01. In addition spontaneous and prompted upward counterfactual were significantly related to one another, r(82) = .27, p < .01.
Event severity and counterfactual thinking. I anticipated that participants would recall more counterfactuals, and specifically more downward counterfactuals, in response to a severe negative life event than in response to a mild negative life event. In order to examine this possibility, I conducted a 2(event type: severe vs. mild) x 2(counterfactual direction: upward vs. downward) mixed-model ANOVA with direction of spontaneous counterfactuals as the repeated measure. The predicted interaction between event severity and counterfactual direction was not significant $F(1, 80) = 1.98, p < .17, \eta^2 = .02$. Although there were no differences in the generation of upward counterfactuals in response to mild ($M=0.55$) vs. severe events ($M=0.50$), participants responding to severe events generated marginally more downward counterfactuals ($M=0.55$) than those responding to mild events ($M=0.24, t(80) = 1.73, p < .09$, refer to Table 4). The main effects for event severity, $F(1, 80) = .92, p > .3, \eta^2 = .01$, and counterfactual direction, $F(1, 80) = 1.03, p > .3, \eta^2 = .01$, were non-significant.

In order to examine prompted counterfactuals a 2(event type: severe vs. mild) x 2(counterbalancing: upward first vs. downward first) x 2(counterfactual direction: upward vs. downward) mixed-model ANOVA with direction of prompted counterfactuals as the repeated measure was conducted. There was no main effect for counterbalancing, $F(1, 78) = 1.00, p > .3, \eta^2 = .01$, but there was a significant interaction between counterbalancing and counterfactual direction, $F(1, 78) = 14.18, p < .0001, \eta^2 = .15$. Participants recalled more upward counterfactuals when upward counterfactuals were elicited first ($M=2.73$) than when they were elicited second ($M=1.96$). On the other hand, participants recalled more downward counterfactuals when downward counterfactuals were elicited first ($M=2.35$) than when they were elicited second ($M=1.96$). However, counterbalancing did not significantly interact with event severity, $F(1, 78) = 1.13, p < .03, \eta^2 = .01$, nor did
counterbalancing significantly interact with event severity, and counterfactual direction, \(F(1, 78) = .52, p < .5, \eta^2 = .01\).

In addition, there was no significant interaction with event severity and counterfactual direction, \(F(1, 78) = .26, p > .6, \eta^2 = .003\) (see Table 5 for mean values). The main effect for event severity, \(F(1, 78) = 1.38, p < .3, \eta^2 = .02\), was also non-significant. Mirroring past findings, there was a main effect for counterfactual direction, indicating that participants generated significantly more prompted upward (\(M = 2.34\)) than downward counterfactuals (\(M = 1.69\)), \(F(1, 78) = 5.58, p < .03, \eta^2 = .07\). Overall, there was not strong support for the notion that people generated more downward than upward counterfactuals in response to severe (vs. mild) events.

\textit{Culture and counterfactual thinking.} One possible explanation for the lack of interaction between event severity and counterfactual direction is that those who chronically or dispositionally tend to be motivated by self-enhancement vs. self-improvement may generate different types of counterfactuals in response to mild and severe negative life events. In order to examine whether cultural differences in counterfactual thinking emerged, I analyzed the data from the Asian-Canadian (n = 50) and European-Canadian (n = 25) participants.\(^14\) A 2 (cultural background: Asian-Canadian vs. European-Canadian) x 2 (event type: severe vs. mild) x 2 (counterbalancing: upward first vs. downward first) x 2 (counterfactual direction: upward vs. downward) mixed-model ANOVA with direction of spontaneous counterfactuals as the repeated measure was conducted. Counterbalancing did not significantly interact with culture or with culture and any other variables to predict the number of upward and downward spontaneous counterfactuals generated, all \(p > .5\). In addition, the ANOVA revealed no significant main effect for culture, \(F(1, 67) = 1.94, p <\)
.17, $\eta^2=.03$, no significant interaction between culture and counterfactual direction, $F(1, 67) = 1.07, p > .3, \eta^2=.02$, no significant interaction between culture and event severity, $F(1, 67) = .25, n.s., \eta^2=.004$, and no significant 3-way interaction between culture, event severity, and counterfactual direction, $F(1, 67) = .21, n.s., \eta^2=.003$ (refer to Table 6 for mean values).

A parallel 2 (cultural background: Asian-Canadian vs. European-Canadian) x 2(event type: severe vs. mild) x 2(counterbalancing: upward first vs. downward first) x 2 (counterfactual direction: upward vs. downward) mixed-model ANOVA run on prompted counterfactuals also revealed that counterbalancing did not significantly interact with culture, with culture and event severity, or with culture, event severity, and counterfactual direction, all $p$s > .9. When examining prompted counterfactuals, although there was no main effect for culture, $F(1, 67) = .34, p > .6, \eta^2=.02$, culture did significantly interact with counterfactual direction, $F(1, 67) = 8.54, p <.01, \eta^2=.15$. In line with predictions, European-Canadians generated more prompted downward counterfactuals ($M = 2.48; SD = 2.42$) than Asian-Canadians ($M = 1.13; SD = 1.66$), $t(73) = 2.51, p <.02$. Asian-Canadians did not generate significantly more prompted upward counterfactuals ($M = 2.46; SD = 1.86$) than European-Canadians ($M = 1.87; SD = 1.25$), $t(73) = 1.56, p <.2$. There was also a significant 3-way interaction between culture, event severity, and counterfactual direction, $F(1, 67) = 6.25, p < .02, \eta^2=.10$. As Table 7 depicts, when responding to mildly negative life events European-Canadians and Asian-Canadians did not differ in their tendencies to generate upward and downward counterfactuals. However, when responding to severe events, European-Canadians reported significantly more upward than downward counterfactuals, whereas Asian-Canadians reported more upward than downward counterfactuals.
Asian-Canadians scored higher in interdependence ($M = 3.50; SD = 0.35$) than European-Canadians ($M = 3.29; SD = 0.41$), $t(73) = 2.22, p < .04$, whereas European-Canadians scored higher in independence ($M = 3.61; SD = 0.45$) than Asian-Canadians ($M = 3.35; SD = 0.40$), $t(73) = 2.52, p < .02$. In addition, European-Canadians had higher self-esteem scores ($M = 3.90; SD = 0.65$) than Asian-Canadians ($M = 3.36; SD = 0.82$), $t(73) = 2.83, p < .01$. Interestingly, when selecting for severe events, interdependence was related to upward prompted counterfactuals, $r(45) = .35$, but not downward counterfactuals, $r(45) = -.10$. Independence was unrelated to reports of prompted upward, $r(45) = .09$, and downward, $r(45) = .05$, counterfactuals when selecting for severe events. In addition, higher self-esteem was associated with generating fewer upward counterfactuals, $r(45) = -.33$, but was not significantly correlated with the generation of downward counterfactuals, $r(45) = .12$ (refer to Table 8). However, these correlational analyses were non-significant when taking the family-wise error rates into account.

**Affect, motives, and counterfactual thinking.** Participants reported higher levels of positive mood after reporting downward counterfactuals ($M = 3.72$) than upward counterfactuals ($M = 2.93$), $t(42) = 4.01, p < .0001$ (refer to Table 9). Participants also had more negative affective reactions to upward counterfactuals ($M = 3.81$) than downward counterfactuals ($M = 2.60$), $t(42) = 4.86, p < .0001$. Participants were more likely to report affect-regulation motives when generating downward ($M = 5.35$) than upward counterfactuals ($M = 4.17$), $t(42) = 3.66, p < .01$. In addition, participants were more likely to report self-improvement motives when generating upward ($M = 5.02$) than downward counterfactuals ($M = 4.29$), $t(42) = 2.93, p < .01$. However, there were no significant differences between ratings of effortfulness when recalling upward ($M = 3.67$) and
downward counterfactuals ($M = 4.04$), $t(42) = 1.32, p < .2$. Event severity did not significantly interact with counterfactual direction to predict any of the mood or motive ratings in this study (all $ps > .2$).

**Discussion**

Study 4 revealed that downward counterfactuals were associated with more positive and less negative moods than upward counterfactuals. This in itself is an important finding because recent research (Mandel, 2003) finds a lack of evidence for an affect regulation function of downward counterfactuals. In Mandel's study, participants recalled either a negative interpersonal experience or a negative academic experience, rated a variety of negative moods in response to the recalled event, and were then prompted to write down any upward and downward counterfactual thoughts they had regarding the event. Upward counterfactuals were positively correlated with certain negative emotions such as sadness, guilt, and shame, but there were no significant correlations between the numbers of downward counterfactuals and ratings of emotions. In the current study, participants reported moods after generating upward and again after generating downward counterfactuals (or the reverse) in order to draw stronger conclusions regarding the association between counterfactual direction and mood. The current findings corroborate the findings of Roese (1994). In one study (Study 2), Roese asked participants to recall a time when they had been particularly disappointed in their performance on an exam. One half of the participants were instructed to generate upward counterfactuals and the other half were instructed to generate downward counterfactuals. Participants then were asked to indicate “how thinking about your exam score makes you feel right now.” The results revealed that those who were instructed to generate downward counterfactuals reported more positive moods than those...
instructed to report upward counterfactuals. It may be the case that Mandel’s study failed to find a strong relation between downward counterfactuals and mood because he asked participants to give mood ratings before counterfactuals were generated. In addition, he did not ask participants to report moods after generating a certain type (e.g., upward or downward) of counterfactual. The current evidence suggests that after generating downward counterfactuals people do report more positive and less negative moods compared to after generating upward counterfactuals.

Furthermore, Study 4 found that participants reported having more affect regulation motives for generating downward than upward counterfactuals, whereas participants reported more preparative motives for generating upward than downward counterfactuals. In addition, European-Canadians demonstrated a preference for downward counterfactuals over upward counterfactuals. However, the key prediction that participants would be more likely to generate downward counterfactuals in response to severe negative events than in response to mild negative events was not supported. This null pattern may be, at least in part, owing to the fact that whereas European-Canadians were more likely to generate downward than upward counterfactuals in response to severe negative events, Asian-Canadians were more likely to generate upward than downward counterfactuals in response to severe negative events.
Chapter VI  Study 5: Self-Affirmation and Counterfactual Thinking

One limitation of Study 4 is that participants were asked to recall what their counterfactual thoughts had been at the time of the event. It may be the case that participants could not recall these counterfactuals, and instead merely reported their implicit theories about how many counterfactuals they generated, or simply generated as many counterfactuals as they could rather than recalling them (thus creating a ceiling effect). Participants in Study 5 were asked about their on-line generation of counterfactual thoughts.

In addition, a self-affirmation task was used in Study 5 to further explore the links between the desire to make the self feel better 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 attempt to enhance the self through other means is attenuated (e.g., Steele, 1988, Tesser & Cornell, 1991). For example, the tendencies to hinder a close other’s performance after a threatening upward social comparison (Tesser & Cornell, 1991), to engage in downward social comparison (and avoid upward social comparison [Spencer, Fein, & Lomore, 2001]), to derogate others when threatened (Fein & Spencer, 1997), to demonstrate cognitive dissonance (Steele & Liu, 1983), to be resistant to messages that counter one’s views (Cohen, Aronson, & Steele, 2000), and to be defensive in light of threatening health information (Sherman, Nelson, & Steele, 2000) are all reduced when people are given the opportunity to self-affirm. Thus, I anticipated that, compared to those who were not given the opportunity to self-affirm, those given the opportunity to self-affirm would be less likely to generate downward counterfactuals after recalling a negative event. In addition, it seems likely that those not given the opportunity to self-affirm will generate more downward than upward
counterfactuals. Presumably, when given the opportunity to feel better about the self through self-affirmation, people won’t be as much in need of generating downward counterfactuals to feel better about the self.

**Method**

*Participants.* Seventy-five participants (64 females and 11 males, mean age = 19.8) completed this study for class credit.

*Materials and Procedure.* Participants completed a study ostensibly regarding personality and reactions to life events in groups of 2-4. Using the same procedure as in the severe event condition in Study 4, participants were asked to recall a traumatic life event and describe the event in writing. After this task (which presumably was somewhat threatening to the self), participants were told by the experimenter that she 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. The self-affirmation manipulation used was a modified version of that used successfully in past research (e.g., Cohen et al., 2000; Fein & Spencer, 1997; Lui & Steele, 1996; Steele, 1988). Specifically, all participants were asked to rank order 11 traits and values (e.g., artistic skills/aesthetic appreciation, sense of humor, relations with friends/family). Participants were randomly assigned to one of two conditions. In the self-affirmation condition participants were asked to write about why their 1st 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 9th ranked value might be important to a typical UBC 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 to generate both upward and downward counterfactuals. Only prompted counterfactual thoughts were recorded in this study. The wording was similar to that of Study 4, with the exception that participants were asked to report current counterfactual thoughts about the recalled negative life event. This was done so as to avoid the problems associated with recalling past counterfactual thoughts. The order of generation of upward and downward counterfactuals was counterbalanced. In addition, after reporting each set of counterfactual thoughts (i.e., both upward and downward), participants completed the same measures of affect regulation motives, preparative motives, and mood that were completed in Study 4. In addition, participants completed the measures of self-esteem and self-construal that were completed in Studies 3 and 4.

Results

Coding for counterfactuals. Once again, two trained coders, blind to experimental condition and the hypotheses, coded for upward and downward counterfactuals. All disagreements were resolved through discussion. Good inter-rater reliability was observed for upward, $r = .88, p <.0001$, and downward, $r = .92, p <.0001$, counterfactuals. In addition, the type of event recalled was coded for ($\kappa = .93$). The most commonly reported events involved loss of loved one to bereavement (31.1%), a relationship problem such as a break-up or argument (25.7%), injury or illness to self (16.2%), or injury or illness to a loved one (10.8%).

Creation of indexes. Indexes were created for positive ($\alpha = .93$) and negative ($\alpha = .86$) moods in response to upward counterfactuals and positive ($\alpha = .95$) and negative ($\alpha =
.89) moods in response to downward counterfactuals. In addition, indexes were created for affective motives for recruiting upward ($\alpha = .65$) and downward ($\alpha = .73$) counterfactuals, and preparative motives for recruiting upward ($\alpha = .86$) and downward ($\alpha = .84$) counterfactuals.

**Self-affirmation and counterfactual thinking.** Recall that it was anticipated that participants who were not given the opportunity to self-affirm would generate more downward counterfactuals than those who were given the opportunity to affirm the self. In order to examine this hypothesis, a 2 (self-affirmation condition: self-affirmation vs. no self-affirmation) x 2 (counterbalancing: upward first vs. downward first) x 2 (counterfactual direction: upward vs. downward) mixed model ANOVA with counterfactual direction as the within-subjects measure was conducted. Because of failure to follow instructions (i.e., generating counterfactuals regarding a different event than the one that was recalled) the data from two participants were removed. The results revealed that there was no main effect for counterbalancing, $F(1, 69) = .08, n.s., \eta^2 = .001$, no significant interaction between affirmation condition and counterbalancing, $F(1, 69) = .88, p < .4, \eta^2 = .013$, and no significant interaction between affirmation condition, counterfactual direction, and counterbalancing, $F(1, 69) = .89, p < .4, \eta^2 = .013$. However, there was a marginal interaction between counterbalancing and counterfactual direction, $F(1, 69) = 2.82, p < .1, \eta^2 = .04$. Although these differences were not significant, the mean number of upward counterfactuals generated was 2.61 when participants were asked to generate upward counterfactuals first and 2.08 when participants were asked to generate downward counterfactuals first. In addition, the mean number of downward counterfactuals was 2.60 when participants were
asked to generate downward counterfactuals first and 1.91 when participants were asked to generate upward counterfactuals first.

Although there were no significant main effects for counterfactual direction, $F(1, 69) = .06, n.s., \eta^2 = .04$, or self-affirmation condition, $F(1, 69) = 1.02, p > .3, \eta^2 = .015$, there was a significant interaction between counterfactual direction and self-affirmation condition, $F(1, 69) = 4.85, p < .04, \eta^2 = .08$. As anticipated, those who were not given the opportunity to self-affirm generated significantly more downward counterfactuals than those who were given the opportunity to self-affirm, $t(71) = 1.99, p < .05$ (refer to table 10). Participants generated marginally more downward ($M = 2.91$) than upward ($M = 2.02$) counterfactuals in the no-affirmation condition, $t(66) = 1.59, p < .12$.

**Culture and counterfactual thinking.** In order to once again examine cultural background and counterfactual thinking, European-Canadians ($n = 39$) and Asian-Canadians ($n = 32$) were selected for analysis. Counterbalancing was included as a factor in the analyses, but it yielded no significant interactions with culture or with culture and any other variable. The results revealed that although there was no main effect for culture, $F(1, 61) = .39, n.s., \eta^2 = .001$, there was a significant interaction between culture and counterfactual direction, $F(1, 61) = 5.14, p < .03, \eta^2 = .08$. European-Canadians generated marginally more downward ($M = 2.76$) than upward ($M = 1.89$), $t(61) = 1.85, p < .07$, counterfactuals, whereas Asian-Canadians generated non-significantly more upward ($M = 2.66$) than downward counterfactuals ($M = 1.86$), $t(61) = 1.57, p < .15$. There was no significant interaction between culture and affirmation condition, $F(1, 61) = .00, n.s., \eta^2 = .00$, and no 3-way interaction between culture, self-affirmation condition, and counterfactual direction, $F(1, 61) = .56, p > .45, \eta^2 = .01$ (see Table 11 for mean values).
In this sample Asian-Canadians had higher ratings of interdependence ($M = 3.64$) than European-Canadians ($M = 3.37$), $t(68) = 2.58, p < .02$. However, European-Canadians did not have significantly higher ratings of independence ($M = 3.51$) than Asian-Canadians ($M = 3.41$), $t(68) = .94, p < .35$. European-Canadians reported higher levels of self-esteem ($M = 3.96$) than Asian-Canadians ($M = 3.58$), $t(68) = 2.56, p < .02$. In this study, independence, interdependence, and self-esteem were not significantly correlated with the generation of upward or downward counterfactuals.

_Affect, motives, and counterfactual thinking._ Paired samples $t$-tests indicated that participants were marginally more likely to report affect regulation motives when generating downward ($M = 4.15$) than upward counterfactuals ($M = 3.42$), $t(45) = 1.85, p < .08$ (see Table 12). Participants reported significantly more preparative motives when generating upward ($M = 4.64$) than downward counterfactuals ($M = 3.15$), $t(45) = 5.01, p < .0001$. Furthermore, participants had more negative affective reactions to upward counterfactuals ($M = 3.84$) than downward counterfactuals ($M = 2.90$), $t(43) = 3.32, p < .01$, but did not exhibit more positive mood after generating downward counterfactuals ($M = 3.06$) than upward counterfactuals ($M = 2.80$), $t(44) = .80, p > .4$. Affirmation condition did not significantly interact with counterfactual direction for any of the mood or motive ratings (all $ps > .22$).

_Discussion._ The results of Study 5 suggest that the need to view the self in a positive light, as manipulated through a self-affirmation task, is related to the generation of upward and downward counterfactuals. Specifically, those who were not given the opportunity to affirm important values generated more downward counterfactuals than those who were given the opportunity to affirm the self. Furthermore, downward counterfactuals were marginally more related to reports of affective motives and were associated with less
negative affect than upward counterfactuals. The converging results from Studies 4 and 5 suggest that downward counterfactuals are associated with more affective motives, less negative moods, and less preparative motives than upward counterfactuals. An interesting direction for future research would be to include a control group that does not generate counterfactuals in response to recalled negative life events, and then to assess affective reactions and motives. The inclusion of a control group would elucidate whether it is downward or upward counterfactuals that have the stronger link to mood and motives.

European-Canadians, who are presumably more likely to enhance the self, generated marginally more downward than upward counterfactuals in the face of stressful events. Recent research on cultural differences in self-affirmation has found that Asian-Canadians who strongly identify with Canadian Culture demonstrated less post-decision rationalization after affirming their independent self (Hoshino-Browne, Zanna, Spencer, & Zanna, in press). Those who weakly identified with Canadian culture (and strongly identified only with Asian culture) were not affected by the independent self-affirmation, and consequently demonstrated post-decision rationalization. However, both Asian-Canadian groups were affected by an interdependent self-affirmation task, whereby they were less likely to engage in post-decision rationalization. Although culture and self-affirmation was not the main emphasis of Study 5, one possible reason the results are not clear for the interaction between culture, affirmation, and counterfactual direction is that the effectiveness of the self-affirmation task may be moderated by the degree to which an individual identifies with the individualistic values of society.
Chapter VII: General Discussion

The foregoing studies provide converging evidence that people can generate more downward than upward counterfactual thoughts in response to stressful life events, particularly when they are motivated to feel better. It appears that the motive to make the self feel better measured via self-report (Study 2), directly manipulated in the laboratory (Study 3), indexed through cultural background (Studies 3, 4, & 5), and manipulated indirectly via self-affirmation (Study 5) moderates the degree to which people report engaging in downward counterfactual thinking in response to stressful life events. Participants reported less negative moods and a greater desire for affect regulation after recalling downward counterfactuals than after recalling upward counterfactuals. Conversely, participants reported more preparative motives after recalling upward counterfactuals than after recalling downward counterfactuals (Studies 4 & 5). This provides further support for the notion that downward counterfactuals serve an affective function, whereas upward counterfactuals serve a preparative function.

Thus, those who are motivated to repair moods and respond to threats to the self-concept will tend to generate more downward than upward counterfactuals. I should note, however, that in the current studies I broadly defined affective motives to encompass both mood-repair and self-enhancement. Future research might examine whether the motive to repair moods or to ameliorate threats to self-esteem is a better predictor of the generation of downward counterfactuals. It may be the case that, in comparison to the mere presence of negative affect, threats to the self induce a greater desire to feel better and subsequently lead to a greater recruitment of psychological defenses. Specifically, threats to the self may promote the generation of more downward counterfactuals than negative mood states alone.
Implications for Counterfactual Thinking Research

Why do the current results run counter to previous studies that have failed to find much evidence for the generation of downward counterfactuals in the face of negative events (e.g., Roese, 1999)? The current data suggest that to the extent that an individual is motivated to feel better (i.e., repair mood and minimize threats to the self) he or she is more likely to engage in downward counterfactual thinking. As noted earlier, one key difference between the current set of studies and past research is that whereas many past studies that find a preponderance of upward counterfactuals examined counterfactual thinking in response to mildly negative events, the current set of studies examined responses to more severe and stressful real-life events such as Chronic Fatigue Syndrome (Study 1), the terrorist attacks on the United States (Study 2), a car accident and the breakup of a relationship (albeit scenario form; Study 3), and finally recalled stressful life events (Studies 4 & 5). An important difference between the former and the latter set of negative events may be the degree to which these events generally invoke self-enhancement vs. self-improvement goals. The events in the current studies are more likely to have encouraged self-enhancement or affective motives, whereas previous studies are more likely to have encouraged self-improvement or preparative motives. Indeed, past research has found that negative events that occurred in academic contexts are more likely to lead to the generation of upward counterfactuals than negative events that occurred in interpersonal contexts (Mandel, 2003).

Another reason why the findings from the current studies may diverge from past research is that the events in the current studies are not only more stressful, they are also less controllable, less common, and less repeatable than the events in earlier studies. The affective benefits of generating downward counterfactuals are likely more appreciable when the event
is uncontrollable, rarer, and not likely repeatable, as well as when the individual is highly
motivated to regulate negative affect and protect against threats to the self.

The Temporal Course of Counterfactual Thinking

Another possible explanation for the divergent results between the current studies and
past research has to do with the temporal course of counterfactual thinking (see Roese &
Olson, 2000 for discussion). It may be the case that upward counterfactuals represent an
automatic, default response (see Goldinger et al., 2003 for evidence that the generation of
upward counterfactuals is an automatic process), whereas downward counterfactuals
represent a more controlled, effortful, and deliberate response to stressful or negative events.
Thus, upward counterfactuals would be more detectable immediately following a negative
event, whereas downward counterfactuals would be more detectable some time after the
onset of the negative event. Because most lab studies prompt for counterfactuals immediately
after the induction of a negative mood or the experience of a negative event, this could be
one explanation for the preponderance of upward counterfactuals in such studies. However
this proposition wasn’t tested here, and hence is an interesting direction for future research.

If downward counterfactual thinking is a coping strategy, then it might be better
studied as a dynamic temporal process (Folkman & Lazarus, 1985; Lazarus & Folkman,
1984). It is possible that, in the face of an immediate threat, upward counterfactuals might be
generated spontaneously in order to avoid more problems, however when the immediate
threat has subsided, downward counterfactuals might be consciously recruited in order to
regulate affect. For example, Sanna (2000; see also Roese et al., in press) has proposed that
although the automatic default response to a negative mood may be to generate upward
counterfactuals, people (such as those with high self-esteem) can effortfully override their
initial upward mental simulations with downward mental simulations. This framework fits nicely with the findings of the current studies. Although research finds that people often engage in upward counterfactual thinking in response to negative events and negative mood states, the current data suggest that when people are motivated by self-enhancement they generate more downward than upward counterfactuals.

However, it also seems plausible that, as the degree of threat subsides over time, so might reliance on downward counterfactuals. For example, the negative relation between duration of illness and use of downward social comparison among cancer patients (Wood et al., 1985) and rheumatoid arthritis patients (Affleck et al., 1987) suggests that early on may be when there is the greatest need to buffer against stress and negative mood. Jensen and Karoly (1982) found that comparative evaluations were strongly negatively associated with reports of depression when examining short-term pain patients, but not when examining those who had been experiencing pain for longer time periods. Wills (1987) suggested that coping via downward comparison may be more strongly associated with psychological functioning during the early stages of coping. It may also be the case that downward counterfactual thinking offers an affective boost only when immediately reacting to an event that is truly traumatic. Thus, although upward counterfactuals may be an immediate response to stressful life events, downward counterfactual thinking may be more common soon after a traumatic event (rather than later), and may primarily lead to positive affective and psychological consequences at this point in time. Because this past research gives us contradictory hints as to what the temporal course of counterfactual thinking might look like, future research in this area is needed.
Downward Counterfactuals as Coping

It has often been assumed that when people facing health threats imagine worse possible worlds (e.g., via engaging in downward social comparison) they are exhibiting emotion-focused coping (e.g., Gibbons & Gerrard, 1991, Langston, 1994; Taylor et al., 1996). Indeed, Wills' (1981, 1987) influential theory of downward social comparison posited that people engage in downward social comparison in order to cope with the threat associated with aversive circumstances. It may be the case that downward counterfactuals similarly serve as a form of coping in response to stressful life events. The data from Studies 4 and 5 support this notion because those who generated downward counterfactuals reported being more likely to have these thoughts for affect regulation reasons (i.e., “…to cope with the situation” and “…to feel better about the situation’’). However, some have questioned whether engaging in downward social comparison can truly be thought of as a coping strategy (Tennen & Affleck, 1997; Tennen, McKee, & Affleck, 2000). These authors suggest that not all adaptive processes reflect coping and that coping must reflect an effortful endeavor (e.g., Aldwin, 1994; Lazarus & Folkman, 1984). According to Tennen and Affleck (1997), making comparisons to worse-off others is coping only if the individual actively seeks out such comparisons. The same argument should hold for imagining worse possible situations: It is only coping if these counterfactual situations are actively and effortfully brought to mind, and it is not coping if counterfactuals are automatic reactions to threatening events. In study 4, participants did not report that downward counterfactuals were more effortful than upward counterfactuals. The possibility that upward counterfactuals may be more automatic and downward counterfactuals more effortful should be examined further in future research. However, there is no consensus regarding the notion that coping need be an
effortful process (Houston, 1987), and it seems possible that downward counterfactuals may serve as a coping mechanism even if they are not effortfully recruited. It is important to note that coping may be able to occur in an automatic fashion. For example, Bargh’s (1997) automatic model suggests that once particular goals are activated, frequently repeated goal pursuits can occur automatically. Coyne and Gottlieb (1996) have argued along these lines and suggest that over time, individuals (for example those dealing with chronic medical conditions) routinize effective coping strategies so that they are no longer conscious and effortful. It seems likely that such a process could occur across different stressful events as well. Specifically, it may be the case that the recruitment of downward counterfactuals in response to a specific stressor, which may have originally been a controlled and effortful endeavor, has, over time, become an automatic response and can be generalized to other stressors.

Stressful Life Events and Counterfactual Thinking

I am not suggesting that individuals will always generate more downward than upward counterfactuals in response to stressful life events. Some life events may be so traumatic that it may not be conceivable to imagine how things could have been worse (e.g., as may have been the case in the Davis et al. studies (1995, 1996; Davis & Lehman, 1995). People in such circumstances or those with certain dispositions (e.g., depressed individuals) may have lost the desire to lift their spirits and may not engage in downward counterfactual thinking to self-enhance or repair moods. Although no research has tested this assertion, it seems conceivable that there exists a curvilinear relationship between threat and the generation of downward counterfactuals. That is, under low threat very few downward counterfactuals are generated as they are not needed to boost affect and self-esteem. As
degree of threat increases, so does the generation of downward counterfactuals. However, if the degree of threat becomes too extreme, it may be the case that worse alternatives are rarely generated. This particular assertion is difficult to test rigorously because, of course, it is not ethical to manipulate threat to the degree that would allow testing whether under extreme trauma, people are no longer motivated to generate downward counterfactuals.

**Direction of Counterfactual Thinking and Affective Outcomes**

Although intuitively it seems that downward counterfactual thinking will lead to positive affect and upward counterfactual thinking to negative affect, the link between counterfactual direction and affective outcomes may not always be so clear. For example, social comparison research informs us that both upward and downward social comparisons can have positive or negative implications for the self (e.g., Brewer & Weber, 1994; Brown, Novick, Lord, & Richards, 1991; Buunk, Collins, Taylor, VanYperen, & Dakof, 1990; Hemphill & Lehman, 1991; Lockwood & Kunda, 1997; Tesser, 1988). Although contrast effects (i.e., more positive moods and self-ratings in response to an upward comparison target than in response to a downward comparison target) are often exhibited, at times people engaging in social comparison demonstrate “assimilation effects.” That is, they experience favorable responses to upward comparison targets and unfavorable responses to downward comparison targets (Collins, 1996, 2000; Major, Testa, & Blysma, 1991; McFarland, Buehler, & McKay, 2001; Pelham & Wachsmuth, 1995). Similarly both assimilation and contrast mechanisms may play an important role in influencing affective reactions to counterfactual thoughts (McMullen & Markman, 2000; McMullen, Markman, & Gavanski, 1995; see Markman & McMullen, in press for a review of assimilation and contrast effects in comparative evaluation).
Contrast effects in counterfactual thinking are most often posited to occur, whereby the imagination of a worse-off world makes the individual feel comparatively better about his or her situation. However, downward counterfactual assimilation has also been documented, in which people's thoughts of how things could have turned out worse serve as a "wake-up call" signaling that one's behavior and planning may be inadequate to meet current expectations and goals. Recent research demonstrates that counterfactual thinking can influence affective states via both assimilation and contrast. For example, McMullen and Markman (2000) found that people who were induced to focus on aspects of downward counterfactuals that produced negative affect (e.g., the negative counterfactual possibility) demonstrated increased motivation to change and improve (i.e., they experienced a "wake-up call"). However, when participants focused on aspects of the downward counterfactuals that produced positive affect (e.g., the true state of affairs) motivation to change and improve was reduced (i.e., the "Pangloss effect").

Social comparison research gives us some clues as to the factors that may lead to assimilation and contrast in counterfactual thinking. For example, factors such as attainability of the worse-off scenario (or the ease of imagining it; Aspinwall, 1997; Lockwood & Kunda, 1997), relevance to the self (Tesser, 1988), controllability (Major et al., 1991), among others (Collins, 1996; Taylor & Lobel, 1989) may moderate reactions to counterfactual alternatives. In addition, attainability and repeatability of the situation (see Markman et al., 1993) might be particularly likely to lead to assimilative reactions to downward counterfactual thoughts because this might lead to better planning in the future. Take, for example, an individual who routinely engages in risky sexual behavior. She may get a "wake-up" call when she finds that an acquaintance has contracted HIV, if she feels highly similar to the acquaintance or that the
events that occurred could have easily happened to her (high attainability), or if she feels that this is a risky behavior she frequently engages in (high repeatability). In this case she may have a negative affective reaction to the downward counterfactual generated and be highly motivated to change in the future. If the individual feels she is not similar to the other, it is unlikely to happen to her, and the events are not repeatable, she will be unlikely to change her behavior and may even feel a sense of complacency by a comparison to a worse-off situation. Thus, downward counterfactuals could lead to assimilation under conditions of high repeatability, relevance to the self, and attainability but contrast under conditions of low repeatability, relevance to the self, and attainability.

An upward counterfactual could also lead to assimilation effects if it seems highly attainable and repeatable. Any gambler will tell you that the "if only" upward counterfactual thoughts generated when one comes close to winning in an environment in which others are winning (high attainability) and the events seem repeatable will lead to positive affect and the motivation to continue gambling. If the events seem unattainable and unrepeatable, upward counterfactuals will likely lead to contrast effects. The conditions under which upward and downward counterfactuals lead to positive or negative consequences for motivation and mood require further investigation.

Directions for Future Research and Conclusions

Would instructing individuals to recruit downward counterfactuals (vs. upward counterfactuals) after experiencing traumatic events help to alleviate negative affect? How do individuals 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 (see Lehman & Hemphill, 1990). 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 should examine
the interpersonal implications of counterfactual thinking, and under what conditions offering
downward (or upward) counterfactuals to others is helpful and unhelpful. The current
research suggests that there are indeed ways of thinking about counterfactual alternatives that
can make us feel better, and future research could examine whether offering these thoughts to
others can have similar effects.
Under certain conditions, though, such as when events are uncontrollable (Roese & Olson, 1995c) or unrepeatable (Markman et al., 1993), downward counterfactuals may be more likely. That is, if the situation is such that one cannot learn from the past to improve the future, downward counterfactuals may be generated. However, Roese and Olson (1995c) did not find evidence for the generation of more downward than upward counterfactuals, rather they found that participants generated more downward counterfactuals in response to uncontrollable than controllable events. The purpose of this dissertation is to identify whether the desire to feel better about the self is related to the generation of more downward than upward counterfactuals.

I am interested in a general desire to make the self feel better. By this I refer both to the desire to repair negative moods and the desire to see the self in a positive light. I use the term mood-repair to refer to a form of affect regulation wherein those in negative moods attempt to improve their moods (Bower, 1981; Parrot & Sabini, 1990). I use the term self-enhancement to describe the desire for people to “...to enhance the positivity of their self-conceptions and to protect the self from negative information” (Sedikides, 1993, p. 18, see Sedikides & Strube, 1997 for review; see Tesser 2001, 2000; Tesser, Crepaz, Collins, Cornell, & Beach, 2000 for a similar conceptualization referred to as “self-esteem maintenance”). I acknowledge, however, that attempts to increase the positivity of the self and to decrease the negativity of the self may have distinct antecedents and consequences (see for example, Paulhus & Reid, 1991; Rhodewalt, Morf, Hazlett, & Fairchild, 1991; Tice, 1991). I am suggesting here that those who are motivated to feel better (be it in terms of mood-repair or self-enhancement) will be more likely to recruit downward counterfactuals.
My conceptualization of the "desire to feel better" corresponds to the proposed affective function of counterfactuals, wherein it has been proposed that downward counterfactuals can both repair negative moods (Roese, 1994) and allow the individual to feel better about the self (Sanna, 2000). It seems likely that both those who wish to ameliorate threats to the self or to repair negative moods will demonstrate a tendency to generate more downward than upward counterfactuals. I also acknowledge, however, that those who want to respond to a threat to the self-concept and who want to repair negative moods may do so somewhat differently. For example, compared to the motive of mood-repair, the desire to address a threat to the self may induce a greater recruitment of psychological resources (in this case generating downward counterfactuals) to feel better again.

In addition to aiding planning and problem-solving, the simulation of upward counterfactuals may make future plans seem more real or probable in the future (Miller & Turnbull, 1990; Taylor & Schneider, 1989). Imagined alternatives may make future events seem more likely (e.g., Anderson, 1983; Gregory, Cialdini, & Carpenter, 1982; Kahneman & Tversky, 1982) and may even make them more likely to occur (Gollwitzer & Brandstaetter, 1997). For example, Pham and Taylor (1999) found that students who mentally simulated strategies for doing well on a test studied more effectively and performed better than students who simply imagined receiving a good grade or those who merely monitored their studying. Thus, upward counterfactuals may act as other mental simulations do, allowing individuals to prepare for the future and actually implement future plans.

Although they did not investigate the generation of counterfactual thoughts per se, Jensen and Karoly (1992) did examine endorsement of downward comparative evaluations among those coping with chronic pain. These researchers combined various comparative evaluation
measures including a downward counterfactual: “When in pain, I remind myself that things could be worse,” and other comparisons: “When in pain, I remind myself about things that I have going for me that other people don’t have, such as intelligence, good looks, and good friends,” “[T]here are people who are worse off than I am,” and “I am adjusting to my pain better than the average pain patient.” In the Jensen and Karoly study an inverse relation was found between use of these comparative strategies and depression among those enduring short-term and medium-term (but not long-term) pain.

In support of the notion that those who are motivated to self-enhance will generate more downward counterfactuals, researchers have also found that optimists (Sanna, 2000) and those high in self-esteem (Sanna et al., 1998; Sanna et al., 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 particularly motivated to see themselves in a positive light.

Myalgic Encephalomitis (ME) is another term for Chronic Fatigue Syndrome. The participants in our study had been officially diagnosed with ME. However, because CFS is the more commonly used term, I use it throughout.

It is important to note that although upward counterfactuals may be associated both with particular problem-focused coping strategies and more negative psychological outcomes, this is not to say that problem-focused coping is necessarily associated with negative psychological consequences. It has been suggested that both emotion-focused and problem-focused coping can be related to decreased psychological distress (Folkman & Lazarus, 1980, 1985; Lazarus, 1993), and that using multiple coping strategies may be particularly adaptive (Collins, Taylor, Skokan, 1990; Pearl & Schooler, 1978). In addition, it may be the case
that whether or not a particular coping style is associated with positive psychological outcomes depends on aspects of the particular stressor such as stressor type, controllability, and duration (Penley, Tomaka, Wiebe, 2002; Taylor, 1995). In fact, although certain emotion-focused strategies such as avoidance may be effective in the short-term, they may not be successful in response to long-term threats (e.g., Suls & Fletcher, 1985). In response to longer-term threats a more vigilant or confrontive coping style may be more beneficial (e.g., Holahan & Moos, 1986,1987). Similarly, although upward counterfactuals may be related to negative moods in the short-term, they may also lead people to be better prepared to deal with problems in the future (e.g., Roese, 1997), and may in the long-run be associated with more positive psychological outcomes. Once again, it may be the case that upward counterfactuals can serve this role when the event in somewhat controllable or repeatable.

Participants also completed items measuring affect intensity, which were used in another study (Van Boven, White, & Kruger, 2002). The wording “recent and horrific attacks” was used to encourage participants to reflect on their affective states. Although admittedly this wording may have inflated reports of being upset, the event clearly was at least somewhat upsetting for the participants. In addition, this wording should not have any differential effects on the number of upward vs. downward counterfactuals generated.

Gender did not predict the generation of upward and downward counterfactuals in this, or any of the studies. Furthermore, gender did not interact with any of the other independent variables in Studies 3, 4, or 5 to predict any significant variance in counterfactual thinking. Thus, gender is not discussed further.

Although little research has examined culture and counterfactual thinking, Bloom (1981, 1984) suggested that because the Chinese language does not allow for counterfactual
expression (e.g., "If only I had been more careful, I could have avoided the accident"),
Chinese counterfactual reasoning is hindered. According to Bloom, this effect is attenuated
among bilingual Chinese who also speak English, presumably because they have an
understanding of counterfactual labels. However, Au (1993, 1994) has refuted this
proposition and finds that Chinese can interpret counterfactual statements just as well as their
American counterparts. In the current study, I anticipate that those from Asian backgrounds
will be able to generate counterfactual thoughts and that they will generate more upward and
less downward counterfactuals than their European-Canadian counterparts.

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

12 In this study the European-Canadian sample included those whose ethnic background was
of European decent. The most commonly reported ethnic backgrounds were British and
British mixed with another European background (44.6%) and Polish (8.3%), with the
remaining participants reporting other European backgrounds (e.g., German, Swedish, Dutch,
Finnish). The Asian-Canadian sample consisted of those of South East Asian decent,
including Chinese (81.1%), Filipino (6.7%), Korean (5.6%), and Japanese (3.3%). Those of
South Asian decent and other ethnic backgrounds were not included in these analyses.

13 Counterbalancing was also included as a factor in these analyses. Counterbalancing did not
significantly interact with cultural background, or with cultural background and any other
variables, all ps < .3.
The European-Canadian sample comprised mostly those of British descent and British mixed with another European background (84.0%). The Asian-Canadian sample consisted mostly of those of Chinese descent (88.2%).

These analyses were conducted with the European-Canadians and Asian-Canadians only. Note that the degrees of freedom are smaller for these analyses because the paired sample t-tests include only those who reported both upward and downward counterfactuals.

Although this is not directly relevant to the current discussion, the structure of counterfactuals was also manipulated. This refers to whether the counterfactual is additive (counterfactual statements that add antecedents to reconstruct reality [e.g., “If only I had brought my umbrella, I wouldn’t have gotten wet”]) or subtractive (counterfactual statements that remove antecedents to reconstruct reality [e.g., “If only it hadn’t rained, I wouldn’t have gotten wet”]).

In this sample the majority of European-Canadians were of British decent (or British mixed with another European background [61.7%]). The majority of the Asian-Canadian sample was once again mostly of Chinese decent (70.5%).

For the current analyses, the assumption of homogeneity of variance was not met, and planned contrasts were calculated using the individual cell variances as recommended by Howell (1997). This procedure was used throughout the current paper when the assumption of homogeneity was not met. Throughout the paper, when the assumption of homogeneity of variance was met, planned contrasts were calculated using the overall mean square error term from the relevant ANOVA as recommended by Howell (1997).
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Miller, D. T., & Turnbull, W. (1990). The counterfactual fallacy: Confusing what might have been with what ought to have been. *Social Justice Research, 4*, 1-19.


Taylor, S. E. (1991). Asymmetrical effects of positive and negative events: The mobilization-


Wilson, A. E., & Ross, M. (2000). The frequency of temporal-self and social comparisons in


Table 1

*Correlations between Number of Counterfactual Thoughts and Use of Coping Strategies* 
*(Study 1)*

<table>
<thead>
<tr>
<th>Coping Strategy</th>
<th>Number of Counterfactuals Generated</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Upward</td>
<td>Downward</td>
</tr>
<tr>
<td><strong>Problem-Focused Coping</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confrontation</td>
<td></td>
<td>r = .31</td>
<td>r = .01</td>
</tr>
<tr>
<td>Planful Problem Solving</td>
<td></td>
<td>r = .31</td>
<td>r = .15</td>
</tr>
<tr>
<td><strong>Emotion-Focused Coping</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accepting Responsibility</td>
<td></td>
<td>r = .27</td>
<td>r = .12</td>
</tr>
<tr>
<td>Distancing</td>
<td></td>
<td>r = .23</td>
<td>r = .01</td>
</tr>
<tr>
<td>Seeking Social Support</td>
<td></td>
<td>r = .17</td>
<td>r = .29</td>
</tr>
<tr>
<td>Positive Reappraisal</td>
<td></td>
<td>r = .06</td>
<td>r = .22</td>
</tr>
<tr>
<td>Self-Control</td>
<td></td>
<td>r = .02</td>
<td>r = .14</td>
</tr>
<tr>
<td>Escape-Avoidance</td>
<td></td>
<td>r = .15</td>
<td>r = .02</td>
</tr>
</tbody>
</table>

Note: The categories of problem-focused and emotion-focused coping were created based on Folkman, Lazarus, Gruen, & DeLongis (1986). Note that when using the Boniferonni procedure (Howell, 1997) to control for family-wise error rate, none of the correlations are significant.
Table 2

*Generation of Spontaneous Upward and Downward Counterfactuals as a Function of Motives (Study 3).*

<table>
<thead>
<tr>
<th>Motive Condition</th>
<th>Upward Counterfactuals</th>
<th>Downward Counterfactuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Enhancement</td>
<td>$M = 0.17_a$</td>
<td>$M = 2.77_b$</td>
</tr>
<tr>
<td>($N = 45$)</td>
<td>$SD = 0.38$</td>
<td>$SD = 2.29$</td>
</tr>
<tr>
<td>No Motive</td>
<td>$M = 0.41_c$</td>
<td>$M = 0.93_d$</td>
</tr>
<tr>
<td>($N = 47$)</td>
<td>$SD = 0.64$</td>
<td>$SD = 1.25$</td>
</tr>
<tr>
<td>Self-Improvement</td>
<td>$M = 0.48_e$</td>
<td>$M = 0.44_e$</td>
</tr>
<tr>
<td>($N = 46$)</td>
<td>$SD = 0.78$</td>
<td>$SD = 0.82$</td>
</tr>
</tbody>
</table>

*Note:* Numbers indicate the number of spontaneous counterfactuals reported. Within columns and rows, numbers with differing subscripts differ at least at the $p < .05$ level, two-tailed.¹⁹
Table 3

*Generation of Prompted Upward and Downward Counterfactuals as a Function of Motives (Study 3).*

<table>
<thead>
<tr>
<th>Motive Condition</th>
<th>Upward Counterfactuals</th>
<th>Downward Counterfactuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Enhancement (N = 45)</td>
<td>$M = 1.83_a$</td>
<td>$M = 3.03_c$</td>
</tr>
<tr>
<td></td>
<td>$SD = 1.27$</td>
<td>$SD = 1.74$</td>
</tr>
<tr>
<td>No Motive (N = 47)</td>
<td>$M = 2.71_b$</td>
<td>$M = 2.59_{bc}$</td>
</tr>
<tr>
<td></td>
<td>$SD = 1.84$</td>
<td>$SD = 1.57$</td>
</tr>
<tr>
<td>Self-Improvement (N = 46)</td>
<td>$M = 2.56_b$</td>
<td>$M = 2.34_b$</td>
</tr>
<tr>
<td></td>
<td>$SD = 1.64$</td>
<td>$SD = 1.33$</td>
</tr>
</tbody>
</table>

*Note:* Numbers indicate the number of prompted counterfactuals reported. Within columns and rows, numbers with differing subscripts differ at least at the $p < .05$ level, two-tailed. The difference for downward counterfactuals generated in the self-enhancement and no-motive conditions is marginally significant at the $p < .1$ level.
Table 4

*Mean Number of Spontaneous Upward and Downward Counterfactuals as a Function of Event Severity (Study 4).*

<table>
<thead>
<tr>
<th>Event Type</th>
<th>Upward Counterfactuals</th>
<th>Downward Counterfactuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild Negative Event</td>
<td>$M = 0.55$</td>
<td>$M = 0.24$</td>
</tr>
<tr>
<td></td>
<td>$SD = 0.92$</td>
<td>$SD = 0.61$</td>
</tr>
<tr>
<td>(N = 42)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severe Negative Event</td>
<td>$M = 0.50$</td>
<td>$M = 0.55$</td>
</tr>
<tr>
<td></td>
<td>$SD = 0.88$</td>
<td>$SD = 0.96$</td>
</tr>
<tr>
<td>(N = 40)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note:* Numbers indicate the number of spontaneous counterfactuals reported.
Table 5

Mean Number of Prompted Upward and Downward Counterfactuals as a Function of Event Severity (Study 4).

<table>
<thead>
<tr>
<th>Event Type</th>
<th>Upward Counterfactuals</th>
<th>Downward Counterfactuals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M = 2.10$</td>
<td>$M = 1.64$</td>
</tr>
<tr>
<td>Mild Negative Event</td>
<td>$SD = 1.46$</td>
<td>$SD = 1.86$</td>
</tr>
<tr>
<td>($N = 42$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severe Negative Event</td>
<td>$M = 2.55$</td>
<td>$M = 1.80$</td>
</tr>
<tr>
<td>($N = 40$)</td>
<td>$SD = 1.87$</td>
<td>$SD = 2.07$</td>
</tr>
</tbody>
</table>

*Note:* Numbers indicate the number of prompted counterfactuals reported.
Table 6

*Mean Number of Upward and Downward Spontaneous Counterfactuals as a Function of Cultural Background and Event Type (Study 4).*

<table>
<thead>
<tr>
<th>Event Type</th>
<th>Mild Event</th>
<th>Severe Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counterfactual Direction</td>
<td>Upward</td>
<td>Downward</td>
</tr>
<tr>
<td>European-Canadian</td>
<td>$M = 0.72$</td>
<td>$M = 0.34$</td>
</tr>
<tr>
<td></td>
<td>$SD = 1.01$</td>
<td>$SD = 0.86$</td>
</tr>
<tr>
<td>Asian-Canadian</td>
<td>$M = 0.44$</td>
<td>$M = 0.17$</td>
</tr>
<tr>
<td></td>
<td>$SD = 0.92$</td>
<td>$SD = 0.46$</td>
</tr>
</tbody>
</table>

*Note:* Numbers indicate the number of spontaneous counterfactuals reported.
Table 7

Mean Number of Upward and Downward Prompted Counterfactuals as a Function of Cultural Background and Event Type (Study 4).

<table>
<thead>
<tr>
<th>Counterfactual Direction</th>
<th>Event Type</th>
<th>Mild Event</th>
<th>Severe Event</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Upward</td>
<td>Downward</td>
</tr>
<tr>
<td>European-Canadian</td>
<td></td>
<td>$M = 1.91_a$</td>
<td>$M = 1.54_a$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$SD = 1.40$</td>
<td>$SD = 2.22$</td>
</tr>
<tr>
<td>Asian-Canadian</td>
<td></td>
<td>$M = 2.18_{ac}$</td>
<td>$M = 1.63_{ad}$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$SD = 2.20$</td>
<td>$SD = 1.77$</td>
</tr>
</tbody>
</table>

Note: Numbers indicate the number of prompted counterfactuals reported. Within columns and rows, numbers with differing subscripts differ at least at the $p < .05$ level, two-tailed.
Table 8

*Correlations between Interdependence, Independence, Self-Esteem, and Prompted Counterfactuals Selecting for a Mild vs. a Severe Event (Study 4).*

<table>
<thead>
<tr>
<th>Event Type</th>
<th>Mild Event</th>
<th>Severe Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counterfactual Direction</td>
<td>Upward</td>
<td>Downward</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>spontaneous counterfactuals</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>interdependence</td>
<td>$r = -.09$</td>
<td>$r = -.28$</td>
</tr>
<tr>
<td>independence</td>
<td>$r = .04$</td>
<td>$r = .16$</td>
</tr>
<tr>
<td>self-esteem</td>
<td>$r = .09$</td>
<td>$r = .17$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>prompted counterfactuals</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>interdependence</td>
<td>$r = .05$</td>
<td>$r = -.16$</td>
</tr>
<tr>
<td>independence</td>
<td>$r = .07$</td>
<td>$r = .27$</td>
</tr>
<tr>
<td>self-esteem</td>
<td>$r = .09$</td>
<td>$r = .25$</td>
</tr>
</tbody>
</table>

Note that when using the Bonferonni procedure (Howell, 1997) to account for family-wise error rate, none of the correlations are significant.
Table 9

*Ratings of Moods, Motives, and Effortfulness as a Function of Counterfactual Direction (Study 4).*

<table>
<thead>
<tr>
<th></th>
<th>Upward Counterfactuals</th>
<th>Downward Counterfactuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Mood</td>
<td>( M = 2.93_a )</td>
<td>( M = 3.72_b )</td>
</tr>
<tr>
<td>Negative Mood</td>
<td>( M = 3.81_a )</td>
<td>( M = 2.60_b )</td>
</tr>
<tr>
<td>Affective Motives</td>
<td>( M = 4.17_a )</td>
<td>( M = 5.35_b )</td>
</tr>
<tr>
<td>Preparative Motives</td>
<td>( M = 5.02_a )</td>
<td>( M = 4.29_b )</td>
</tr>
<tr>
<td>Effortfulness</td>
<td>( M = 3.67_a )</td>
<td>( M = 4.04_a )</td>
</tr>
</tbody>
</table>

*Note: Within rows, numbers with differing subscripts differ at least at the \( p < .01 \) level, two-tailed.*
Table 10

Number of Upward and Downward Counterfactuals Generated in the Self-Affirmation and No Self-Affirmation Conditions (Study 5).

<table>
<thead>
<tr>
<th>Affirmation Condition</th>
<th>Upward Counterfactuals</th>
<th>Downward Counterfactuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Affirmation</td>
<td>$M = 2.49_{ab}$</td>
<td>$M = 1.77_a$</td>
</tr>
<tr>
<td>N = 39</td>
<td>$SD = 1.83$</td>
<td>$SD = 1.59$</td>
</tr>
<tr>
<td>No Self-Affirmation</td>
<td>$M = 2.02_b$</td>
<td>$M = 2.91_b$</td>
</tr>
<tr>
<td>N = 34</td>
<td>$SD = 1.60$</td>
<td>$SD = 3.00$</td>
</tr>
</tbody>
</table>

Note: Within columns and rows, numbers with differing subscripts differ at least at the $p < .05$ level, two-tailed. The difference between the numbers of upward and downward counterfactuals generated in both the self-affirmation condition and the no self-affirmation condition are marginally significant at the $p < .15$ level, two-tailed.
Table 11

*Number of Upward and Downward Counterfactuals Generated as a Function of Cultural Background and Self-Affirmation Condition (Study 5).*

<table>
<thead>
<tr>
<th>Counterfactual Direction</th>
<th>Self-Affirmation</th>
<th>No Self-Affirmation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Upward</td>
<td>Downward</td>
</tr>
<tr>
<td>European-Canadian</td>
<td>$M = 2.26$</td>
<td>$M = 2.04$</td>
</tr>
<tr>
<td></td>
<td>$SD = 1.74$</td>
<td>$SD = 1.70$</td>
</tr>
<tr>
<td>Asian-Canadian</td>
<td>$M = 2.69$</td>
<td>$M = 1.41$</td>
</tr>
<tr>
<td></td>
<td>$SD = 1.99$</td>
<td>$SD = 1.51$</td>
</tr>
</tbody>
</table>
Table 12

Ratings of Moods and Motives as a Function of Counterfactual Direction. (Study 5).

<table>
<thead>
<tr>
<th></th>
<th>Upward Counterfactuals</th>
<th>Downward Counterfactuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Mood</td>
<td>( M = 2.80 )</td>
<td>( M = 3.06 )</td>
</tr>
<tr>
<td>Negative Mood</td>
<td>( M = 3.84_a )</td>
<td>( M = 2.90_b )</td>
</tr>
<tr>
<td>Affective Motives</td>
<td>( M = 3.42_a )</td>
<td>( M = 4.15_b )</td>
</tr>
<tr>
<td>Preparative Motives</td>
<td>( M = 4.64_a )</td>
<td>( M = 3.15_b )</td>
</tr>
</tbody>
</table>

*Note:* Within rows, numbers with differing subscripts differ at least at the \( p < .01 \) level, two-tailed. The exception is that the ratings of affective motives are marginally significant at the \( p < .08 \) level.
Figure 1: Number of Upward and Downward Counterfactuals Generated in Response to Chronic Fatigue Syndrome (Study 1).
Figure 2: Number of Upward and Downward Counterfactuals Generated in Response to September 11th (Study 2).
Figure 3: Number of Downward Counterfactuals Generated as a Function of Reported Affective Motives (Study 2).
Figure 4: Number of Upward Counterfactuals Generated as a Function of Reported Preparative Motives (Study 2).
Appendix I: Study 1 Materials
Interview questions regarding upward counterfactual thinking:

1. People with ME sometimes think about how things might have turned out differently. In some instances, they may think about how things may have turned out better. For example, they might think, “If only something had been different, I might not have become ill, or things might not have been so bad.” 
   Over the past month or so, have you ever had thoughts of how things might have turned out better?

2. Since getting ME, have you ever had thoughts about how things might have turned out better? (asked if question #1 is no)

3. Please tell me what thoughts you’ve had about how things might have turned out “better.”

Interview questions regarding downward counterfactual thinking

1. People with ME sometimes think about how things might have turned out differently. In some instances, they may think about how things may have turned out worse. For example, they might think, “At least such and such didn’t happen to me” or “Even though I have ME, it would have been worse if such and such had been different.” Over the past month or so, have you ever had thoughts of how things might have turned out worse?

2. Since getting ME, have you ever had thoughts about how things might have turned out worse? (asked if question #1 is no)

3. Please tell me the thoughts you’ve had about how things might have turned out “worse.”
BSI

Please put a number to the left of each item that best describes how much that problem has bothered or distressed you in the past month. Please mark only one number for each problem.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT AT ALL</td>
<td>SLIGHTLY</td>
<td>MODERATELY</td>
<td>QUITE A BIT</td>
<td>EXTREMELY</td>
</tr>
</tbody>
</table>

1) Nervousness or shakiness
2) Faintness or dizziness.
3) Pains in heart or chest.
4) Thoughts of ending your life.
5) Suddenly scared for no reason.
6) Feeling lonely.
7) Feeling blue.
8) Feeling no interest in things.
9) Feeling fearful.
10) Your feelings being easily hurt.
11) Nausea or upset in stomach.
12) Trouble getting your breath.
13) Hot or cold spells.
14) Numbness or tingling in parts of your body.
15) Feeling hopeless about the future.
16) Feeling weak in parts of your body.
17) Feeling tense or keyed up.
18) Spells of terror or panic.
19) Feeling so restless you could not sit still.
20) Feelings of worthlessness.
RUMINATIVE THOUGHTS

Now I am going to read you five statements regarding tendencies some people have [SHOW RED SCALE “A” "STRONGLY DISAGREE" TO "STRONGLY AGREE"]. Using this scale, for each of the statements, please tell me the extent to which you disagree or agree that the statement describes you.

B1) I always seem to be "re-hashing" in my mind recent things I've said or done.

<table>
<thead>
<tr>
<th></th>
<th>1 STRONGLY DISAGREE</th>
<th>2 SLIGHTLY DISAGREE</th>
<th>3 NEUTRAL</th>
<th>4 SLIGHTLY AGREE</th>
<th>5 STRONGLY AGREE</th>
</tr>
</thead>
</table>

B2) I don't waste time re-thinking things that are over and done with.

<table>
<thead>
<tr>
<th></th>
<th>1 STRONGLY DISAGREE</th>
<th>2 SLIGHTLY DISAGREE</th>
<th>3 NEUTRAL</th>
<th>4 SLIGHTLY AGREE</th>
<th>5 STRONGLY AGREE</th>
</tr>
</thead>
</table>

B3) Long after an argument or disagreement is over, my thoughts keep going back to what happened.

<table>
<thead>
<tr>
<th></th>
<th>1 STRONGLY DISAGREE</th>
<th>2 SLIGHTLY DISAGREE</th>
<th>3 NEUTRAL</th>
<th>4 SLIGHTLY AGREE</th>
<th>5 STRONGLY AGREE</th>
</tr>
</thead>
</table>

B4) I tend to "ruminate" or dwell on things that happen to me for a really long time afterward.

<table>
<thead>
<tr>
<th></th>
<th>1 STRONGLY DISAGREE</th>
<th>2 SLIGHTLY DISAGREE</th>
<th>3 NEUTRAL</th>
<th>4 SLIGHTLY AGREE</th>
<th>5 STRONGLY AGREE</th>
</tr>
</thead>
</table>

B5) Often I’m playing back in my mind how I acted in a past situation.

<table>
<thead>
<tr>
<th></th>
<th>1 STRONGLY DISAGREE</th>
<th>2 SLIGHTLY DISAGREE</th>
<th>3 NEUTRAL</th>
<th>4 SLIGHTLY AGREE</th>
<th>5 STRONGLY AGREE</th>
</tr>
</thead>
</table>
WOC

We would like to find out how you deal with the impact of your fatigue on your life and your relationships with other people. Please fill in the blank with the number that best describes how much you use each strategy in dealing with your fatigue. Some of these strategies may not apply to your situation.

<table>
<thead>
<tr>
<th>1</th>
<th>NOT AT ALL DOES NOT APPLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>SOME</td>
</tr>
<tr>
<td>3</td>
<td>A LOT</td>
</tr>
</tbody>
</table>

1) Tried to keep my feelings to myself.
2) Made light of the situation; refused to get too serious about the situation.
3) Tried to see things from the other person’s perspective.
4) Criticized or lectured myself.
5) Stood my ground and fought for what I wanted.
6) Tried to meet the other person half-way.
7) Tried to accept the other person(s) as they are now.
8) Took some time to be with someone I enjoy.
9) Wished the situation would go away or somehow be over with.
10) Tried to help the other person involved by doing something for them.
11) Increased my efforts to make things work.
12) Talked with someone to find out more about the situation.
13) Changed or grew as a person in a good way.
14) Took some private time out to do something.
15) Tried to figure out what would make the other person feel better.
16) Accepted sympathy or understanding from someone.
17) Tried to keep others from knowing how bad things were.
18) Went on as if nothing had changed.
19) Imagined myself in the other people’s shoes.
20) Realized I brought the problem on myself.
21) Tried to get the person responsible to change his or her mind.
22) Tried to find a solution that was fair to all involved.
23) Tried to understand the other person’s concerns.
24) I let my feelings out somehow.
25) Hoped a miracle would happen.
26) Tried to help the other person(s) involved by listening to them.
27) Made a plan of action and followed it.
28) I asked someone I respected for advice.
29) Rediscovered what is important in life.
30) Did something nice for myself.
31) Tried to experience what the other person was feeling.
32) Tried to forget the whole thing.
33) Tried to keep my feelings from interfering with other things too much.
<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NOT AT ALL</td>
<td>SOME</td>
<td>A LOT</td>
</tr>
<tr>
<td></td>
<td>DOES NOT APPLY</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

34) I changed something about myself.
35) Tried to understand how the other person felt.
36) Made a promise to myself that things would be different next time.
37) Expressed anger to the person(s) who had caused the problem.
38) Tried to compromise with other(s) involved.
39) Did special things to take care of myself or try to improve my health.
40) I went over in my mind what I would say or do.
41) Didn’t let it get to me; refused to think about it too much.
42) Had fantasies about how things might turn out.
43) Tried to comfort the other person(s) involved by showing my positive feelings for them.
44) Concentrated on what I had to do next to solve the problem.
45) Talked with someone about how I was feeling.
46) I came out of the experience better than when I went in.
47) Took time to do something fun or enjoyable.
48) I apologized or did something to make up.
49) Avoided being with people in general.
50) Changed something so things would turn out all right.
51) Tried to make myself feel better by eating, drinking, smoking, using drugs, and so forth.
52) Any other? What did you do?
Appendix II: Study 2 Materials
September 11th Tragedy

Background Information:

Codename: ______________________

Sex: male  female (please circle one)

Age: ____________

Ethnic background: ________________________________

Part I: Please answer the following questions as accurately as possible by circling a number.

1. When you think about the recent and horrific terrorist attacks on the US, including the planes that crashed into the World Trade Center and the Pentagon and the plane that crashed in Pennsylvania, how upset does it make you?

   (1) —— (2) —— (3) —— (4) —— (5) —— (6) —— (7) —— (8) —— (9)
   not at all upset  extremely upset

2. When the average student in your classes thinks about the recent and horrific terrorist attacks on the US, including the planes that crashed into the World Trade Center and the Pentagon and the plane that crashed in Pennsylvania, how upset do you think it makes the average student?

   (1) —— (2) —— (3) —— (4) —— (5) —— (6) —— (7) —— (8) —— (9)
   not at all upset  extremely upset

3. How relevant to your own life do you find the events that transpired on September 11th?

   (1) —— (2) —— (3) —— (4) —— (5) —— (6) —— (7) —— (8) —— (9)
   extremely irrelevant  extremely relevant

Note: Item 2 was not used in this study.
Part II: Counterfactual Thinking

Sometimes when negative things happen, people have thoughts of how things might have turned out differently. Sometimes these thoughts are about how things could have been better ("if only") and sometimes these thoughts are about how things could have been worse ("at least"). For example, a person who was recently in a car accident might tell him/herself "if only I hadn't been speeding, things would have turned out better" or "at least no-one was seriously injured or things would have been worse."

1a) Please recall your thoughts during the past week about the tragic events last Tuesday, September 11th. You may have had thoughts about how things could have been better ("if only... "). If you had any such thoughts during the past week please list them below.

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

1b) Why do you think you had these thoughts? For example, you may have had such thoughts to make yourself feel better about the situation, to think about what could be done in the future, or you may have not consciously wanted to have such thoughts.

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
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____________________________________________________________________________________

2a) Please recall your thoughts during the past week about the tragic events last Tuesday, September 11th. You may have had thoughts about how things could have been worse ("at least... "). If you had any such thoughts during the past week please list them below.

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

2b) Why do you think you had these thoughts? For example, you may have had such thoughts to make yourself feel better about the situation, to think about what could be done in the future, or you may have not consciously wanted to have such thoughts.

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____________________________________________________________________________________
Appendix III: Study 3 Materials
(Self-Improvement (Preparative) Motivation)

Part I: Reactions to Life Events Questionnaire

Background Information

Gender (please circle): Female    Male
Age: __________
What is your intended major? ______________________________________
What year are you in at UBC? ______________________________________
Please state your country of birth: __________________________________
If you were not born in Canada, what year did you move to Canada? _________
What country were your parents born in?
    Mother? ______________________
    Father? ______________________
What is your ethnic descent? (e.g., German/Italian, Chinese etc.): _____________
Below you will read about a hypothetical event. Please try to imagine the event as if it were really happening to you. After you read the event description, please take some time to tell us how you would respond to the event. Your thoughtfulness is greatly appreciated. Please remember that all of your responses will be completely anonymous and confidential.

**Scenario #1**

Imagine that you are driving to work and that you are running late. You are a bit anxious as this will be the third time in the last two weeks that you have been late. You pull up at a four way stop, stop briefly, and then begin to drive into the intersection. Suddenly, another driver sails though his stop sign at about 35 km an hour without stopping. Even though the other car crashes into your right side, you manage to veer to the left to avoid a greater impact. You are not seriously hurt, but your back and neck are awfully sore. The other driver seems fine. There is damage to the right side of your car, it is caved in and looks like it will be fairly expensive to fix. The other driver’s front end is pushed in and his fender is dislocated.
Reaction to Event

Think about what spontaneous thoughts you would have in response to this situation. Please tell us below the kinds of things you would tell yourself in response to this scenario.

Sometimes we want to think about the situation *in a way that makes us learn from the situation*. 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. 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 you that you would have about the situation if you wanted to *improve yourself or learn from the situation*. 

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When faced with situations such as this, people often have thoughts like “if only...” or “at least...” Sometimes these thoughts can be about things that would have made the situation better (“if only...”) and sometimes these thoughts can be about things that would have made the situation worse (“at least...”). For example, a student who does worse than expected on an exam might tell himself/herself “if only I had had more time to study, I would have gotten a better grade” or “at least I didn’t fail, it could have been worse.” In the spaces below, please list the thoughts or imaginings you would have about how the situation could have been either better or worse if you wanted to improve yourself or learn from the situation.
Below you will read about a hypothetical event. Please try to imagine the event as if it were really happening to you. After you read the event description, please take some time to tell us how you would respond to the event. Your thoughtfulness is greatly appreciated. Please remember that all of your responses will be completely anonymous and confidential.

Scenario #2

Imagine that you and your significant other have been together for almost 10 months. Lately it seems like the two of you have been arguing a lot. Your significant other seems to not really be as attentive as he/she once was and has been spending less and less time with you. You feel like you have invested a lot into the relationship and want to work at staying together. You really do care about this person, but you also wonder if maybe you are too different to make it work. One evening your significant other shows up late. You are tired and exhausted from your day at school and slightly irritated because you have been waiting for an hour. You snap at your significant other about being late and it ends up escalating into a full blown argument. The argument ends up in the two of you breaking up.
Reaction to Event

Think about what spontaneous thoughts you would have in response to this situation. Please tell us below the kinds of things you would tell yourself in response to this scenario.

Sometimes we want to think about the situation in a way that makes us learn from the situation. 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. 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 you that you would have about the situation if you wanted to improve yourself or learn from the situation.

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________________________________________________________________________
When faced with situations such as this, people often have thoughts like “if only...” or “at least...”. Sometimes these thoughts can be about things that would have made the situation better (“if only...”) and sometimes these thoughts can be about things that would have made the situation worse (“at least...”). For example, a student who does worse than expected on an exam might tell himself/her herself “if only I had had more time to study, I would have gotten a better grade” or “at least I didn’t fail, it could have been worse.” In the spaces below, please list the thoughts or imaginings you would have about how the situation could have been either better or worse if you wanted to improve yourself or learn from the situation.
Part I: Reactions to Life Events Questionnaire

Background Information

Gender (please circle): Female    Male
Age: __________
What is your intended major? ____________________________
What year are you in at UBC? ___________________________
Please state your country of birth: ______________________
If you were not born in Canada, what year did you move to Canada? _________
What country were your parents born in?
    Mother? ____________________________
    Father? ____________________________
What is your ethnic descent? (e.g., German/Italian, Chinese etc.): ________________
Below you will read about a hypothetical event. Please try to imagine the event as if it were really happening to you. After you read the event description, please take some time to tell us how you would respond to the event. Your thoughtfulness is greatly appreciated. Please remember that all of your responses will be completely anonymous and confidential.

**Scenario #1**

Imagine that you are driving to work and that you are running late. You are a bit anxious as this will be the third time in the last two weeks that you have been late. You pull up at a four way stop, stop briefly, and then begin to drive into the intersection. Suddenly, another driver sails though his stop sign at about 35 km an hour without stopping. Even though the other car crashes into your right side, you manage to veer to the left to avoid a greater impact. You are not seriously hurt, but your back and neck are awfully sore. The other driver seems fine. There is damage to the right side of your car, it is caved in and looks like it will be fairly expensive to fix. The other driver’s front end is pushed in and his fender is dislocated.
Reaction to Event

Think about what spontaneous thoughts you would have in response to this situation. Please tell us below the kinds of things you would tell yourself in response to this scenario.

Sometimes we want to think about the situation *in a way that makes us feel particularly good about ourselves*. We select the information that makes us feel better and describe the situation in the most positive light. The ability to sometimes describe the situation in this positive way may be important for maintaining a positive self-image and good mental health. On this page we would like you to write down the thoughts you that you would have about this situation if you wanted to *lift your spirits* or to *see your situation in the most positive light possible*.
When faced with situations such as this, people often have thoughts like “if only...” or “at least...”. Sometimes these thoughts can be about things that would have made the situation better ("if only...") and sometimes these thoughts can be about things that would have made the situation worse ("at least..."). For example, a student who does worse than expected on an exam might tell himself/herself “if only I had had more time to study, I would have gotten a better grade” or “at least I didn’t fail, it could have been worse.” In the spaces below, please list the thoughts or imaginings you would have about how the situation could have been either better or worse if you wanted to lift your spirits or to see your situation in the most positive light possible.
Below you will read about a hypothetical event. Please try to imagine the event as if it were really happening to you. After you read the event description, please take some time to tell us how you would respond to the event. Your thoughtfulness is greatly appreciated. Please remember that all of your responses will be completely anonymous and confidential.

Scenario #2

Imagine that you and your significant other have been together for almost 10 months. Lately it seems like the two of you have been arguing a lot. Your significant other seems to not really be as attentive as he/she once was and has been spending less and less time with you. You feel like you have invested a lot into the relationship and want to work at staying together. You really do care about this person, but you also wonder if maybe you are too different to make it work. One evening your significant other shows up late. You are tired and exhausted from your day at school and slightly irritated because you have been waiting for an hour. You snap at your significant other about being late and it ends up escalating into a full blown argument. The argument ends up in the two of you breaking up.
Reaction to Event

Think about what spontaneous thoughts you would have in response to this situation. Please tell us below the kinds of things you would tell yourself in response to this scenario.

Sometimes we want to think about the situation in a way that makes us feel particularly good about ourselves. We select the information that makes us feel better and describe the situation in the most positive light. The ability to sometimes describe the situation in this positive way may be important for maintaining a positive self-image and good mental health. On this page we would like you to write down the thoughts you that you would have about this situation if you wanted to lift your spirits or to see your situation in the most positive light possible.
When faced with situations such as this, people often have thoughts like “if only...” or “at least...” Sometimes these thoughts can be about things that would have made the situation better (“if only...”) and sometimes these thoughts can be about things that would have made the situation worse (“at least...”). For example, a student who does worse than expected on an exam might tell himself/herself “if only I had had more time to study, I would have gotten a better grade” or “at least I didn’t fail, it could have been worse.” In the spaces below, please list the thoughts or imaginings you would have about how the situation could have been either better or worse if you wanted to lift your spirits or to see your situation in the most positive light possible.
Part I: Reactions to Life Events Questionnaire

Background Information

Gender (please circle): Female Male

Age: __________

What is your intended major? ____________________________

What year are you in at UBC? ____________________________

Please state your country of birth: ________________________

If you were not born in Canada, what year did you move to Canada? ________

What country were your parents born in?

Mother? ____________________________

Father? ____________________________

What is your ethnic descent? (e.g., German/Italian, Chinese etc.): ____________________________
Below you will read about a hypothetical event. Please try to imagine the event as if it were really happening to you. After you read the event description, please take some time to tell us how you would respond to the event. Your thoughtfulness is greatly appreciated. Please remember that all of your responses will be completely anonymous and confidential.

**Scenario #1**

Imagine that you are driving to work and that you are running late. You are a bit anxious as this will be the third time in the last two weeks that you have been late. You pull up at a four way stop, stop briefly, and then begin to drive into the intersection. Suddenly, another driver sails though his stop sign at about 35 km an hour without stopping. Even though the other car crashes into your right side, you manage to veer to the left to avoid a greater impact. You are not seriously hurt, but your back and neck are awfully sore. The other driver seems fine. There is damage to the right side of your car, it is caved in and looks like it will be fairly expensive to fix. The other driver’s front end is pushed in and his fender is dislocated.
Reaction to Event

Think about what spontaneous thoughts you would have in response to this situation. Please tell us below the kinds of things you would tell yourself in response to this scenario.
When faced with situations such as this, people often have thoughts like “if only…” or “at least…” Sometimes these thoughts can be about things that would have made the situation better (“if only…”), and sometimes these thoughts can be about things that would have made the situation worse (“at least…”). For example, a student who does worse than expected on an exam might tell himself/herself “if only I had had more time to study, I would have gotten a better grade” or “at least I didn’t fail, it could have been worse.” In the spaces below, please list the thoughts or imaginings you would have about how the situation could have been either better or worse.
Below you will read about a hypothetical event. Please try to imagine the event as if it were really happening to you. After you read the event description, please take some time to tell us how you would respond to the event. Your thoughtfulness is greatly appreciated. Please remember that all of your responses will be completely anonymous and confidential.

**Scenario #2**

Imagine that you and your significant other have been together for almost 10 months. Lately it seems like the two of you have been arguing a lot. Your significant other seems to not really be as attentive as he/she once was and has been spending less and less time with you. You feel like you have invested a lot into the relationship and want to work at staying together. You really do care about this person, but you also wonder if maybe you are too different to make it work. One evening your significant other shows up late. You are tired and exhausted from your day at school and slightly irritated because you have been waiting for an hour. You snap at your significant other about being late and it ends up escalating into a full blown argument. The argument ends up in the two of you breaking up.
Reaction to Event

Think about what spontaneous thoughts you would have in response to this situation. Please tell us below the kinds of things you would tell yourself in response to this scenario.

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________
When faced with situations such as this, people often have thoughts like “if only...” or “at least...” Sometimes these thoughts can be about things that would have made the situation better (“if only...”) and sometimes these thoughts can be about things that would have made the situation worse (“at least...”). For example, a student who does worse than expected on an exam might tell himself/herself “if only I had had more time to study, I would have gotten a better grade” or “at least I didn’t fail, it could have been worse.” In the spaces below, please list the thoughts or imaginings you would have about how the situation could have been either better or worse.
The items in this section of the questionnaire assess various aspects of your personality. Instructions for each subsection are presented at the beginning of every section. All of your responses on this questionnaire are completely anonymous and confidential. We appreciate your honesty and thoughtfulness in answering these items. When you have completed this questionnaire, please place it in the envelope provided. Do not seal the envelope until the end of the session because other materials will also be placed in the envelope.
Please respond to the following statements by circling the number that best applies.

<table>
<thead>
<tr>
<th>1</th>
<th>STRONGLY DISAGREE</th>
<th>2</th>
<th>MODERATELY DISAGREE</th>
<th>3</th>
<th>UNSURE</th>
<th>4</th>
<th>MODERATELY AGREE</th>
<th>5</th>
<th>STRONGLY AGREE</th>
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</thead>
<tbody>
<tr>
<td>1. I enjoy being unique and different from others in many respects</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
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<td>2. I feel comfortable using someone’s first name soon after I meet them, even when they are much older than I am.</td>
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<td>3. Even when I strongly disagree with group members, I avoid an argument.</td>
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<td>4</td>
<td>5</td>
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<tr>
<td>4. I have respect for the authority figures with whom I interact.</td>
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<td>5</td>
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<tr>
<td>5. I do my own thing, regardless of what others think.</td>
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<td>4</td>
<td>5</td>
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<tr>
<td>6. I respect people who are modest about themselves.</td>
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<td>4</td>
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<tr>
<td>7. I feel it is important for me to act as an independent person.</td>
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<tr>
<td>8. I will sacrifice my self-interest for the benefit of the group I am in.</td>
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<td>9. I’d rather say “No” directly, than risk being misunderstood.</td>
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<td>5</td>
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<td>10. Having a lively imagination is important to me.</td>
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<td>11. I should take into consideration my parents’ advice when making education/career plans.</td>
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<td>5</td>
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<td>12. I feel my fate is intertwined with the fate of those around me.</td>
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<td>13. I prefer to be direct and forthright when dealing with people I’ve just met.</td>
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<td>14. I feel good when I cooperate with others.</td>
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<td>4</td>
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<td>15. I am comfortable with being singled out for praise or rewards.</td>
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<td>16. If my brother or sister fails, I feel responsible.</td>
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<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>17. I often have the feeling that my relationships with others are more important than my own accomplishments.</td>
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<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>18. Speaking up during a class (or a meeting) is not a problem for me.</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>19. I would offer my seat in a bus to my professor (or my boss).</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>20. I act the same way no matter who I am with.</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
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<tr>
<td>21. My happiness depends on the happiness of those around me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
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<tr>
<td>22. I value being in good health above everything.</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<td></td>
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</tbody>
</table>
23. I will stay in a group if they need me, even when I am not happy with the group. ................................. 1 2 3 4 5
24. I try to do what is best for me, regardless of how that might affect others. ................................. 1 2 3 4 5
25. Being able to take care of myself is a primary concern for me. ................................. 1 2 3 4 5
26. It is important to me to respect decisions made by the group. ................................. 1 2 3 4 5
27. My personal identity, independent of others, is very important to me. ................................. 1 2 3 4 5
28. It is important for me to maintain harmony within my group. ................................. 1 2 3 4 5
29. I act the same way at home that I do in school. ................................. 1 2 3 4 5
30. I usually go along with what others want to do, even when I would rather do something different. ................................. 1 2 3 4 5
For each of the following statements and/or questions, please circle the point on the scale that you feel is most appropriate in describing you.

1. In general, I consider myself:

   1  2  3  4  5  6  7
   not a very  a very
   happy person  happy person

2. Compared to most of my peers, I consider myself:

   1  2  3  4  5  6  7
   less  more
   happy  happy

3. Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you?

   1  2  3  4  5  6  7
   not at all  a great deal

4. Some people are generally not very happy. Although they are not depressed, they never seem as happy as they might be. To what extent does this characterization describe you?

   1  2  3  4  5  6  7
   not at all  a great deal
Please rate your disagreement or agreement with the following statements:

<table>
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<tr>
<th></th>
<th>1 STRONGLY DISAGREE</th>
<th>2 MODERATELY DISAGREE</th>
<th>3 UNSURE</th>
<th>4 MODERATELY AGREE</th>
<th>5 STRONGLY AGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>At times I think I'm no good at all.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>I certainly feel useless at times.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>I wish I could have more respect for myself.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>On the whole, I am satisfied with myself.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>I take a positive attitude toward myself.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>I feel I do not have much to be proud of.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>I am able to do things as well as most other people.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>All in all, I am inclined to feel that I am a failure.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>I feel that I have a number of good qualities.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>I feel that I'm a person of worth, at least on an equal basis with others.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

This part of the questionnaire consists of 13 groups of statements. After reading each group of statements carefully, circle the number (0, 1, 2 or 3) next to the statement in each group which best describes the way you have been feeling over the past month, including today.

1. **0** - I do not feel sad  
   **1** - I feel sad  
   **2** - I am sad all the time and I can't seem to snap out of it  
   **3** - I am so sad or unhappy that I can't stand it

2. **0** - I am not particularly discouraged about the future  
   **1** - I feel discouraged about the future  
   **2** - I feel I have nothing to look forward to  
   **3** - I feel that the future is hopeless and that things cannot improve

3. **0** - I do not feel like a failure  
   **1** - I feel I have failed more than the average person  
   **2** - As I look back on my life, all I can see is a lot of failure  
   **3** - I feel I am a complete failure as a person

4. **0** - I get as much satisfaction out of things as I used to  
   **1** - I don't enjoy things the way I used to  
   **2** - I don't get real satisfaction out of anything anymore  
   **3** - I am dissatisfied or bored with everything
5. 0 - I don't feel particularly guilty
   1 - I feel guilty a good part of the time
   2 - I feel quite guilty most of the time
   3 - I feel guilty all of the time

6. 0 - I don't feel disappointed in myself
   1 - I am disappointed in myself
   2 - I am disgusted with myself
   3 - I hate myself

7. 0 - I don't have any thoughts of killing myself
   1 - I have thoughts of killing myself, but I would not carry them out
   2 - I would like to kill myself
   3 - I would kill myself if I had the chance

8. 0 - I have not lost interest in other people
   1 - I am less interested in other people than I used to be
   2 - I have lost most of my interest in other people
   3 - I have lost all of my interest in other people

9. 0 - I make decisions about as well as I ever could
   1 - I put off making decisions more than I used to
   2 - I have greater difficulty in making decisions than before
   3 - I can't make decisions at all anymore

10. 0 - I don't feel I look any worse than I used to
    1 - I am worried that I am looking old or unattractive
    2 - I feel that there are permanent changes in my appearance that make me look unattractive
    3 - I believe that I look ugly.

11. 0 - I can work about as well as before
    1 - It takes an extra effort to get started at doing something
    2 - I have to push myself very hard to do anything
    3 - I can't do any work at all

12. 0 - I don't get more tired than usual
    1 - I get tired more easily than I used to
    2 - I get tired from doing almost anything
    3 - I am too tired to do anything

13. 0 - My appetite is no worse than usual
    1 - My appetite is not as good as it used to be
    2 - My appetite is much worse now
    3 - I have no appetite at all anymore
Appendix IV: Study 4 Materials
Part A: Background Information

Gender (please circle): Female    Male

Age: ________

Year: ________

What is your intended major? __________________________

Please state your country of birth: __________________________

If you were not born in Canada, what year did you move to Canada? ________

What country were your parents born in?

Mother? __________________________

Father? __________________________

What is your ethnic descent? (e.g., German/Italian, Chinese etc.): __________________________
Part B: Recall of Life Events

Right now, think back and describe a very negative, stressful, or traumatic event that happened to you (e.g., the loss of a loved one, being seriously injured, breaking up with a girlfriend/boyfriend, etc.). Reflect upon and actively imagine this event for a moment or two and then describe it briefly below. After describing the event, please move on to the remaining questions. Please be assured that your responses are completely anonymous and confidential.
Part A: Background Information

Gender (please circle): Female   Male

Age: ________

Year: ________

What is your intended major? ________________________________

Please state your country of birth: ____________________________

If you were not born in Canada, what year did you move to Canada? ________

What country were your parents born in?

Mother? ____________________________

Father? ____________________________

What is your ethnic descent? (e.g., German/Italian, Chinese etc.): ________________
Part B: Recall of Life Events

Right now, think back and describe a mildly negative or stressful that happened to you (e.g., having a bad day, getting a lower grade than you expected, having a small argument with another person). Reflect upon and actively imagine this event for a moment or two and then describe it briefly below. After describing the event, please move on to the remaining questions. Please be assured that your responses are completely anonymous and confidential.
Ratings of the Event

Please circle the number that corresponds to how you felt about the event:

1) Please rate how **pleasant** the event you described was:

- extremely unpleasant event in my life (1) - (2) - (3) - (4) - (5) - (6) - (7) - (8) - (9)
- extremely pleasant event in my life

2) Please rate how **traumatic** the event was for you:

- not at all traumatic (1) - (2) - (3) - (4) - (5) - (6) - (7) - (8) - (9)
- extremely traumatic

3) Please rate how **stressful** the event was for you:

- not at all stressful (1) - (2) - (3) - (4) - (5) - (6) - (7) - (8) - (9)
- extremely stressful

4) **How vivid** was the visual imagery you had when thinking about or describing the event?

- not at all vivid (1) - (2) - (3) - (4) - (5) - (6) - (7) - (8) - (9)
- extremely vivid

5) How long ago did the event occur? Please check the timeframe that best applies:

- [ ] In the past 0-6 months.
- [ ] Between 6 months to 1 year ago.
- [ ] Between 1 year to 2 years ago.
- [ ] Between 2 to 5 years ago.
- [ ] Over 5 years ago.

6) To what degree do you believe you had control over the event?

- not at all in my control (1) - (2) - (3) - (4) - (5) - (6) - (7) - (8) - (9)
- completely in my control

7) To what degree do you think the event was caused by your own actions?

- not at all caused by my own actions (1) - (2) - (3) - (4) - (5) - (6) - (7) - (8) - (9)
- completely caused by my own actions

8) To what degree do you think the event was caused by factors outside of your control?

- not at all caused by external factors (1) - (2) - (3) - (4) - (5) - (6) - (7) - (8) - (9)
- completely caused by external factors

9) How likely do you think it is that you will experience a similar event in the future?

- not at all likely (1) - (2) - (3) - (4) - (5) - (6) - (7) - (8) - (9)
- extremely likely
Reaction to Event

We are particularly interested in the things people tell themselves after different life events. Think about what spontaneous thoughts you had in response to this situation. Please tell us below the kinds of things you told yourself after experiencing this event.

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Counterfactual Thoughts

Please think back to the event that you recalled:

When faced with situations such as this, people often have thoughts about how things might have turned out differently. Sometimes these thoughts can be about things that would have made the situation better, and they are about circumstances that are better than what actually happened. For example, a person telling him/herself about how things might be better might say things like "If only...," "I wish...," "Things would have been better if...," "I could have done X better," etc.

Please try your best to accurately recall what thoughts you had about to the event you described above. You may have had thoughts about how things could have been better 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:

________________________________________________________________________________
________________________________________________________________________________
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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. For example, you may have had such thoughts to make yourself feel better about the situation, to think about what could be done in the future, or you may have not consciously wanted to have such thoughts.

________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
Thoughts about How Things Could Have Been Better

Note: if you had no such thoughts, please skip this page and move on to the next page

1. When you originally had these thoughts, did you feel that you effortfully brought these thoughts to mind?
   not at all  (1) - (2) - (3) - (4) - (5) - (6) - (7)  very much so

2. When you originally had these thoughts, did you feel that these thoughts were automatically (i.e., not voluntarily) brought to mind?
   not at all  (1) - (2) - (3) - (4) - (5) - (6) - (7)  very much so

3. When you originally had these thoughts, did you feel that you consciously brought these thoughts to mind?
   not at all  (1) - (2) - (3) - (4) - (5) - (6) - (7)  very much so

4. When you originally had these thoughts, did you want to have them?
   not at all  (1) - (2) - (3) - (4) - (5) - (6) - (7)  very much so

5. Do you think you had these thoughts to cope with the situation?
   not at all  (1) - (2) - (3) - (4) - (5) - (6) - (7)  very much so

6. Do you think you had these thoughts to help you improve in the future?
   not at all  (1) - (2) - (3) - (4) - (5) - (6) - (7)  very much so

7. Do you think you had these thoughts to feel better about the situation?
   not at all  (1) - (2) - (3) - (4) - (5) - (6) - (7)  very much so

8. Do you think you had these thoughts to learn from what happened?
   not at all  (1) - (2) - (3) - (4) - (5) - (6) - (7)  very much so
9. When you originally had these thoughts about *ways the situation could have been better* how did these thoughts change your mood? (Please rate your mood below).

<table>
<thead>
<tr>
<th>Feeling</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>I felt more happy</td>
<td>not at all</td>
</tr>
<tr>
<td></td>
<td>(1) – (2) – (3) – (4) – (5) – (6) – (7) extremely</td>
</tr>
<tr>
<td>I felt more satisfied</td>
<td>not at all</td>
</tr>
<tr>
<td></td>
<td>(1) – (2) – (3) – (4) – (5) – (6) – (7) extremely</td>
</tr>
<tr>
<td>I felt more competent</td>
<td>not at all</td>
</tr>
<tr>
<td></td>
<td>(1) – (2) – (3) – (4) – (5) – (6) – (7) extremely</td>
</tr>
<tr>
<td>I felt more pleased</td>
<td>not at all</td>
</tr>
<tr>
<td></td>
<td>(1) – (2) – (3) – (4) – (5) – (6) – (7) extremely</td>
</tr>
<tr>
<td>I felt more distressed</td>
<td>not at all</td>
</tr>
<tr>
<td></td>
<td>(1) – (2) – (3) – (4) – (5) – (6) – (7) extremely</td>
</tr>
<tr>
<td>I felt more disappointed</td>
<td>not at all</td>
</tr>
<tr>
<td></td>
<td>(1) – (2) – (3) – (4) – (5) – (6) – (7) extremely</td>
</tr>
<tr>
<td>I felt more anxious</td>
<td>not at all</td>
</tr>
<tr>
<td></td>
<td>(1) – (2) – (3) – (4) – (5) – (6) – (7) extremely</td>
</tr>
<tr>
<td>I felt more worried</td>
<td>not at all</td>
</tr>
<tr>
<td></td>
<td>(1) – (2) – (3) – (4) – (5) – (6) – (7) extremely</td>
</tr>
<tr>
<td>I felt more sad</td>
<td>not at all</td>
</tr>
<tr>
<td></td>
<td>(1) – (2) – (3) – (4) – (5) – (6) – (7) extremely</td>
</tr>
<tr>
<td>I felt more enthusiastic</td>
<td>not at all</td>
</tr>
<tr>
<td></td>
<td>(1) – (2) – (3) – (4) – (5) – (6) – (7) extremely</td>
</tr>
<tr>
<td>I felt more guilty</td>
<td>not at all</td>
</tr>
<tr>
<td></td>
<td>(1) – (2) – (3) – (4) – (5) – (6) – (7) extremely</td>
</tr>
<tr>
<td>I felt more optimistic</td>
<td>not at all</td>
</tr>
<tr>
<td></td>
<td>(1) – (2) – (3) – (4) – (5) – (6) – (7) extremely</td>
</tr>
<tr>
<td>I felt more motivated</td>
<td>not at all</td>
</tr>
<tr>
<td></td>
<td>(1) – (2) – (3) – (4) – (5) – (6) – (7) extremely</td>
</tr>
<tr>
<td>I felt more ashamed</td>
<td>not at all</td>
</tr>
<tr>
<td></td>
<td>(1) – (2) – (3) – (4) – (5) – (6) – (7) extremely</td>
</tr>
<tr>
<td>I felt more comfortable</td>
<td>not at all</td>
</tr>
<tr>
<td></td>
<td>(1) – (2) – (3) – (4) – (5) – (6) – (7) extremely</td>
</tr>
<tr>
<td>I felt more hopeful</td>
<td>not at all</td>
</tr>
<tr>
<td></td>
<td>(1) – (2) – (3) – (4) – (5) – (6) – (7) extremely</td>
</tr>
<tr>
<td>I felt more regretful</td>
<td>not at all</td>
</tr>
<tr>
<td></td>
<td>(1) – (2) – (3) – (4) – (5) – (6) – (7) extremely</td>
</tr>
<tr>
<td>I felt more angry</td>
<td>not at all</td>
</tr>
<tr>
<td></td>
<td>(1) – (2) – (3) – (4) – (5) – (6) – (7) extremely</td>
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</table>
Counterfactual Thoughts

Please think back to the event that you recalled:

When faced with situations such as this, people often have thoughts about how things might have turned out differently. Sometimes these thoughts can be about things that would have made the situation worse, and they are about circumstances that are worse than what actually happened. For example, a person telling him/herself about how things might be worse might say things like “At least…,” “I am glad that X did not happen,” “Things would have been worse if…,” “I could have done X worse,” etc.

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 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 worse:

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

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 worse. For example, you may have had such thoughts to make yourself feel better about the situation, to think about what could be done in the future, or you may have not consciously wanted to have such thoughts.
Thoughts about How Things Could Have Been Worse

Note: if you had no such thoughts, please skip this page and move on to the next page

1. When you originally had these thoughts, did you feel that you effortfully brought these thoughts to mind?
   not at all (1) - (2) - (3) - (4) - (5) - (6) - (7) very much so

2. When you originally had these thoughts, did you feel that these thoughts were automatically (i.e., not voluntarily) brought to mind?
   not at all (1) - (2) - (3) - (4) - (5) - (6) - (7) very much so

3. When you originally had these thoughts, did you feel that you consciously brought these thoughts to mind?
   not at all (1) - (2) - (3) - (4) - (5) - (6) - (7) very much so

4. When you originally had these thoughts, did you want to have them?
   not at all (1) - (2) - (3) - (4) - (5) - (6) - (7) very much so

5. Do you think you had these thoughts to cope with the situation?
   not at all (1) - (2) - (3) - (4) - (5) - (6) - (7) very much so

6. Do you think you had these thoughts to help you improve in the future?
   not at all (1) - (2) - (3) - (4) - (5) - (6) - (7) very much so

7. Do you think you had these thoughts to feel better about the situation?
   not at all (1) - (2) - (3) - (4) - (5) - (6) - (7) very much so

8. Do you think you had these thoughts to learn from what happened?
   not at all (1) - (2) - (3) - (4) - (5) - (6) - (7) very much so
9. When you originally had these thoughts about ways the situation could have been better how did these thoughts change your mood? (Please rate your mood below).

<table>
<thead>
<tr>
<th>Thought</th>
<th>Rating Range</th>
<th>Mood</th>
</tr>
</thead>
<tbody>
<tr>
<td>I felt more happy</td>
<td>not at all</td>
<td>(1) - (2) - (3) - (4) - (5) - (6) - (7)</td>
</tr>
<tr>
<td>I felt more satisfied</td>
<td>not at all</td>
<td>(1) - (2) - (3) - (4) - (5) - (6) - (7)</td>
</tr>
<tr>
<td>I felt more competent</td>
<td>not at all</td>
<td>(1) - (2) - (3) - (4) - (5) - (6) - (7)</td>
</tr>
<tr>
<td>I felt more pleased</td>
<td>not at all</td>
<td>(1) - (2) - (3) - (4) - (5) - (6) - (7)</td>
</tr>
<tr>
<td>I felt more distressed</td>
<td>not at all</td>
<td>(1) - (2) - (3) - (4) - (5) - (6) - (7)</td>
</tr>
<tr>
<td>I felt more disappointed</td>
<td>not at all</td>
<td>(1) - (2) - (3) - (4) - (5) - (6) - (7)</td>
</tr>
<tr>
<td>I felt more competent</td>
<td>not at all</td>
<td>(1) - (2) - (3) - (4) - (5) - (6) - (7)</td>
</tr>
<tr>
<td>I felt more satisfied</td>
<td>not at all</td>
<td>(1) - (2) - (3) - (4) - (5) - (6) - (7)</td>
</tr>
<tr>
<td>I felt more anxious</td>
<td>not at all</td>
<td>(1) - (2) - (3) - (4) - (5) - (6) - (7)</td>
</tr>
<tr>
<td>I felt more worried</td>
<td>not at all</td>
<td>(1) - (2) - (3) - (4) - (5) - (6) - (7)</td>
</tr>
<tr>
<td>I felt more enthusiastic</td>
<td>not at all</td>
<td>(1) - (2) - (3) - (4) - (5) - (6) - (7)</td>
</tr>
<tr>
<td>I felt more guilty</td>
<td>not at all</td>
<td>(1) - (2) - (3) - (4) - (5) - (6) - (7)</td>
</tr>
<tr>
<td>I felt more optimistic</td>
<td>not at all</td>
<td>(1) - (2) - (3) - (4) - (5) - (6) - (7)</td>
</tr>
<tr>
<td>I felt more motivated</td>
<td>not at all</td>
<td>(1) - (2) - (3) - (4) - (5) - (6) - (7)</td>
</tr>
<tr>
<td>I felt more ashamed</td>
<td>not at all</td>
<td>(1) - (2) - (3) - (4) - (5) - (6) - (7)</td>
</tr>
<tr>
<td>I felt more comfortable</td>
<td>not at all</td>
<td>(1) - (2) - (3) - (4) - (5) - (6) - (7)</td>
</tr>
<tr>
<td>I felt more hopeful</td>
<td>not at all</td>
<td>(1) - (2) - (3) - (4) - (5) - (6) - (7)</td>
</tr>
<tr>
<td>I felt more regretful</td>
<td>not at all</td>
<td>(1) - (2) - (3) - (4) - (5) - (6) - (7)</td>
</tr>
<tr>
<td>I felt more angry</td>
<td>not at all</td>
<td>(1) - (2) - (3) - (4) - (5) - (6) - (7)</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>STRONGLY</td>
<td>MODERATELY</td>
<td>UNSURE</td>
</tr>
<tr>
<td>DISAGREE</td>
<td>DISAGREE</td>
<td></td>
</tr>
</tbody>
</table>

1) I enjoy being unique and different from others in many respects .......................... 1 2 3 4 5
2) I feel comfortable using someone's first name soon after I meet them, even when they are much older than I am ................................................................. 1 2 3 4 5
3) Even when I strongly disagree with group members, I avoid an argument .................. 1 2 3 4 5
4) I have respect for the authority figures with whom I interact ................................... 1 2 3 4 5
5) I do my own thing, regardless of what others think .............................................. 1 2 3 4 5
6) I respect people who are modest about themselves ............................................... 1 2 3 4 5
7) I feel it is important for me to act as an independent person .................................. 1 2 3 4 5
8) I will sacrifice my self-interest for the benefit of the group I am in ......................... 1 2 3 4 5
9) I'd rather say "No" directly, than risk being misunderstood ..................................... 1 2 3 4 5
10) Having a lively imagination is important to me ..................................................... 1 2 3 4 5
11) I should take into consideration my parents' advice when making education/career plans .......................... 1 2 3 4 5
12) I feel my fate is intertwined with the fate of those around me ............................... 1 2 3 4 5
13) I prefer to be direct and forthright when dealing with people I've just met ............ 1 2 3 4 5
14) I feel good when I cooperate with others ............................................................ 1 2 3 4 5
15) I am comfortable with being singled out for praise or rewards .............................. 1 2 3 4 5
16) If my brother or sister fails, I feel responsible ...................................................... 1 2 3 4 5
17) I often have the feeling that my relationships with others are more important than my own accomplishments .......................... 1 2 3 4 5
18) Speaking up during a class (or a meeting) is not a problem for me ......................... 1 2 3 4 5
19) I would offer my seat in a bus to my professor (or my boss) .................................. 1 2 3 4 5
20) I act the same way no matter who I am with ...................................................... 1 2 3 4 5
21) My happiness depends on the happiness of those around me ............................... 1 2 3 4 5
22) I value being in good health above everything .................................................... 1 2 3 4 5
23) I will stay in a group if they need me, even when I am not happy with the group. ................................................................. 1 2 3 4 5
24) I try to do what is best for me, regardless of how that might affect others. ................................................................. 1 2 3 4 5
25) Being able to take care of myself is a primary concern for me. ................................................................. 1 2 3 4 5
26) It is important to me to respect decisions made by the group. ................................................................. 1 2 3 4 5
27) My personal identity, independent of others, is very important to me. ................................................................. 1 2 3 4 5
28) It is important for me to maintain harmony within my group. ................................................................. 1 2 3 4 5
29) I act the same way at home that I do in school. ................................................................. 1 2 3 4 5
30) I usually go along with what others want to do, even when I would rather do something different. ................................................................. 1 2 3 4 5

Please rate your disagreement or agreement with the following statements:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRONGLY</td>
<td>MODERATELY</td>
<td>UNSURE</td>
<td>MODERATELY</td>
<td>STRONGLY</td>
</tr>
<tr>
<td>DISAGREE</td>
<td>DISAGREE</td>
<td></td>
<td>AGREE</td>
<td>AGREE</td>
</tr>
</tbody>
</table>

1. At times I think I'm no good at all. ................................................................. 1 2 3 4 5
2. I certainly feel useless at times. ................................................................. 1 2 3 4 5
3. I wish I could have more respect for myself. ................................................................. 1 2 3 4 5
4. On the whole, I am satisfied with myself. ................................................................. 1 2 3 4 5
5. I take a positive attitude toward myself. ................................................................. 1 2 3 4 5
6. I feel I do not have much to be proud of. ................................................................. 1 2 3 4 5
7. I am able to do things as well as most other people. ................................................................. 1 2 3 4 5
8. All in all, I am inclined to feel that I am a failure. ................................................................. 1 2 3 4 5
9. I feel that I have a number of good qualities. ................................................................. 1 2 3 4 5
10. I feel that I'm a person of worth, at least on an equal basis with others. ................................................................. 1 2 3 4 5
Please circle the number that best fits your answer.

1) When another person does better than I do, I get tense and aroused.
   strongly disagree 1 2 3 4 5 6 7 strongly agree

2) I would do what would please my family, even if I detested that activity.
   strongly disagree 1 2 3 4 5 6 7 strongly agree

3) I'd rather depend on myself than on others.
   strongly disagree 1 2 3 4 5 6 7 strongly agree

4) I am a unique person, separate from others.
   strongly disagree 1 2 3 4 5 6 7 strongly agree

5) Being a unique individual is important to me.
   strongly disagree 1 2 3 4 5 6 7 strongly agree

6) It is important to me to maintain harmony within my group.
   strongly disagree 1 2 3 4 5 6 7 strongly agree

7) I enjoy working in situations involving competition with others.
   strongly disagree 1 2 3 4 5 6 7 strongly agree

8) The well-being of my coworkers is important to me.
   strongly disagree 1 2 3 4 5 6 7 strongly agree

9) My personal identity, independent from others, is very important to me.
   strongly disagree 1 2 3 4 5 6 7 strongly agree

10) If a relative were in financial difficulty, I would help within my means.
    strongly disagree 1 2 3 4 5 6 7 strongly agree

11) Winning is everything.
    strongly disagree 1 2 3 4 5 6 7 strongly agree

12) I usually sacrifice my self-interest for the benefit of my group.
    strongly disagree 1 2 3 4 5 6 7 strongly agree

13) I enjoy being unique and different from others.
    strongly disagree 1 2 3 4 5 6 7 strongly agree
14) Self-sacrifice is a virtue.
   strongly disagree 1 2 3 4 5 6 7 strongly agree

15) Some people emphasize winning; I'm one of them.
   strongly disagree 1 2 3 4 5 6 7 strongly agree

16) It annoys me if I have to sacrifice activities that I enjoy to help others.
   strongly disagree 1 2 3 4 5 6 7 strongly agree

17) It is important that I do my job better than others.
   strongly disagree 1 2 3 4 5 6 7 strongly agree

18) Without competition, it is not possible to have a good society.
   strongly disagree 1 2 3 4 5 6 7 strongly agree

19) It is important to me that I respect the decisions made by my groups.
   strongly disagree 1 2 3 4 5 6 7 strongly agree

20) If a coworker gets a prize, I would feel proud.
   strongly disagree 1 2 3 4 5 6 7 strongly agree

21) I rely on myself most of the time; I rarely rely on others.
   strongly disagree 1 2 3 4 5 6 7 strongly agree

22) It is important to consult close friends and get their ideas before making a decision.
   strongly disagree 1 2 3 4 5 6 7 strongly agree

23) Competition is the law of nature.
   strongly disagree 1 2 3 4 5 6 7 strongly agree

24) I often do "my own thing."
   strongly disagree 1 2 3 4 5 6 7 strongly agree

25) Some people emphasize winning; I'm not one of them.
   strongly disagree 1 2 3 4 5 6 7 strongly agree

26) I like sharing little things with my neighbors.
   strongly disagree 1 2 3 4 5 6 7 strongly agree

27) We should keep our aging parents with us at home.
   strongly disagree 1 2 3 4 5 6 7 strongly agree
28) I would sacrifice an activity that I enjoy very much if my family did not approve of it.

   strongly disagree 1 2 3 4 5 6 7 strongly agree

29) Children should be taught to place duty before pleasure.

   strongly disagree 1 2 3 4 5 6 7 strongly agree

30) It annoys me when other people perform better than I do.

   strongly disagree 1 2 3 4 5 6 7 strongly agree

For each of the following statements and/or questions, please circle the point on the scale that you feel is most appropriate in describing you.

1. In general, I consider myself:

   1 2 3 4 5 6 7
   not a very happy person
   a very happy person

2. Compared to most of my peers, I consider myself:

   1 2 3 4 5 6 7
   less happy
   more happy

3. Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you?

   1 2 3 4 5 6 7
   not at all
   a great deal

4. Some people are generally not very happy. Although they are not depressed, they never seem as happy as they might be. To what extent does this characterization describe you?

   1 2 3 4 5 6 7
   not at all
   a great deal

Please read each group of statements carefully. Then pick out the one statement in each group that best describes the way you have been feeling the past week, including today. Please circle the number beside the statement you picked. If several statements in a group seem to apply equally well, please circle the highest number associated with these statements.

1. 0 I do not feel sad.
   1 I feel sad.
   2 I am sad all the time and I can’t snap out of it.
   3 I am so sad or unhappy that I can’t stand it.

2. 0 I am not particularly discouraged about the future.
   1 I feel discouraged about the future.
   2 I feel I have nothing to look forward to.
   3 I feel that the future is hopeless and that things cannot improve.
3. 0 I do not feel like a failure.
   1 I feel like I have failed more than the average person.
   2 As I look back on my life, all I can see is a lot of failures.
   3 I feel that I am a complete failure as a person.

4. 0 I get as much satisfaction out of things I used to.
   1 I don't enjoy things the way I used to.
   2 I don't get real satisfaction out of anything anymore.
   3 I am dissatisfied.

5. 0 I don't feel particularly guilty.
   1 I feel guilty a good part of the time.
   2 I feel quite guilty most of the time.
   3 I feel guilty all of the time.

6. 0 I don't feel disappointed in myself.
   1 I am disappointed in myself.
   2 I am disgusted with myself.
   3 I hate myself.

7. 0 I don't have any thoughts of killing myself.
   1 I have thoughts of killing myself, but I would not carry them out.
   2 I would like to kill myself.
   3 I would kill myself if I had the chance.

8. 0 I have not lost interest in other people.
   1 I am less interested in other people than I used to be.
   2 I have lost most of my interest in other people.
   3 I have lost all of my interest in other people.

9. 0 I make decisions about as well as I ever could.
   1 I put off decisions more than I used to.
   2 I have greater difficulty in making decisions than before.
   3 I can't make decisions at all anymore.

10. 0 I don't feel I look any worse than I used to.
     1 I am worried that I am looking old or unattractive.
     2 I feel that there are permanent changes in my appearance that make me look unattractive.
     3 I believe that I look ugly.

11. 0 I can work about as well as before.
     1 It takes an extra effort to get started at doing something.
     2 I have to push myself very hard to do anything.
     3 I can't do any work at all.

12. 0 I don't get more tired than usual.
     1 I get tired more easily than I used to.
     2 I get tired from doing almost anything.
     3 I am too tired to do anything.

13. 0 My appetite is no worse than usual.
     1 My appetite is not as good as it used to be.
     2 My appetite is much worse now.
     3 I have no appetite at all anymore.
Appendix V: Study 5 Materials
Recall of Life Event

On the next page, you will be asked to recall a negative life event. Please keep and mind that your responses are anonymous and confidential. Your thoughtfulness is greatly appreciated.
Part A: Recall of Life Events

Right now, think back and describe a very negative, stressful, or traumatic event that happened to you (e.g., the loss of a loved one, being seriously injured, breaking up with a girlfriend/boyfriend, etc.). Reflect upon and actively imagine this event for a moment or two and then describe it briefly below. After describing the event, the experimenter will give you a questionnaire packet containing some further questions. Please be assured that your responses are completely anonymous and confidential.
Part 1: Importance of Traits

(Researchers: K. White and D. Lehman)

This study concerns the way in which personality is related to memory for personal experiences. As one of our measures of personality, you will be asked to rank order traits in order of importance to your self-concept (i.e., who you think you are as a person). You will then be asked to answer some open-ended questions about these different values.

Below is a list of characteristics and values, some of which may be important to you, some of which may be unimportant. Please rank these values and qualities in order of their importance to you, from 1 to 11 (1 = most important item, 11 = least important item). Use each number only once.

- artistic skills/aesthetic appreciation
- sense of humor
- relations with friends and family
- spontaneity/living in the moment
- social skills
- athletics
- honesty
- creativity
- physical attractiveness
- business/managerial skills
- being independent

In the space below, please describe why the trait you rated 1st above is important to you.

______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
In the space below, please describe a time in your life in which the trait you rated 1st above was important to you and made you feel good about yourself.
(no Self-Affirmation Condition)

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Below is a list of characteristics and values, some of which may be important to you, some of which may be unimportant. Please rank these values and qualities in order of their importance to you, from 1 to 11 (1 = most important item, 11 = least important item). Use each number only once.

- artistic skills/aesthetic appreciation
- sense of humor
- relations with friends and family
- spontaneity/living in the moment
- social skills
- athletics
- honesty
- creativity
- physical attractiveness
- business/managerial skills
- being independent

In the space below, please describe why the trait you rated 9th above might be important to the typical student at UBC.
In the space below, please describe a time in the typical UBC student’s life (can be hypothetical) in which the trait you rated $9^{th}$ above may have been important.
Reactions to Event and Personality Questionnaire

In this booklet you will be asked to report your reactions to the event you recalled and to complete some personality measures. Please keep and mind that your responses are anonymous and confidential. Your thoughtfulness is greatly appreciated.
Reaction to Event

We are particularly interested in the things people tell themselves after life events. Think about what spontaneous thoughts you have right now, at this point in time in response to the event you recalled.
How Things Could Have Been Better

Please think back to the event that you recalled:

When faced with situations such as this, people often have thoughts about how things might have turned out differently. Sometimes these thoughts can be about things that would have made the situation better ("If only...", "I wish...", "Things would have been better if...", "I could have done X better," etc). For example, a student who does worse than expected on an exam might tell himself/herself "if only I had had more time to study, I would have gotten a better grade." You may have thoughts about how this event could have turned out better or you may have no such thoughts at all. If you have such thoughts please list the thoughts or imaginings you have about how the situation could have been better.

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. For example, you may have had such thoughts to make yourself feel better about the situation, to think about what could be done in the future, or you may have not consciously wanted to have such thoughts.
Thoughts about How Things Could Have Been Better

Note: These questions ask about thoughts you have about how things could have been better. If you have no such thoughts, please skip this page and move on to the next page.

6. When you originally had these thoughts, did you feel that you effortfully brought these thoughts to mind?
   not at all  1  2  3  4  5  6  7 very much so

7. When you originally had these thoughts, did you feel that these thoughts were automatically (i.e., not voluntarily) brought to mind?
   not at all  1  2  3  4  5  6  7 very much so

8. When you originally had these thoughts, did you feel that you consciously brought these thoughts to mind?
   not at all  1  2  3  4  5  6  7 very much so

9. When you originally had these thoughts, did you want to have them?
   not at all  1  2  3  4  5  6  7 very much so

10. Do you think you had these thoughts to cope with the situation?
    not at all  1  2  3  4  5  6  7 very much so

6. Do you think you had these thoughts to help you improve in the future?
   not at all  1  2  3  4  5  6  7 very much so

7. Do you think you had these thoughts to feel better about the situation?
   not at all  1  2  3  4  5  6  7 very much so

8. Do you think you had these thoughts to learn from what happened?
   not at all  1  2  3  4  5  6  7 very much so
9. When you think about *ways the situation could have been better* how do these thoughts change your mood? (Please rate your mood below).

<table>
<thead>
<tr>
<th>Feeling</th>
<th>Rating Options</th>
<th>Score Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>I felt more happy</td>
<td>not at all</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I felt more satisfied</td>
<td>not at all</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I felt more competent</td>
<td>not at all</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I felt more pleased</td>
<td>not at all</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I felt more distressed</td>
<td>not at all</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I felt more disappointed</td>
<td>not at all</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I felt more anxious</td>
<td>not at all</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I felt more worried</td>
<td>not at all</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I felt more sad</td>
<td>not at all</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I felt more enthusiastic</td>
<td>not at all</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I felt more guilty</td>
<td>not at all</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I felt more optimistic</td>
<td>not at all</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I felt more motivated</td>
<td>not at all</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I felt more ashamed</td>
<td>not at all</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I felt more comfortable</td>
<td>not at all</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I felt more hopeful</td>
<td>not at all</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I felt more regretful</td>
<td>not at all</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I felt more angry</td>
<td>not at all</td>
<td>1 2 3 4 5 6 7</td>
</tr>
</tbody>
</table>
How Things Could Have Been Worse

Please think back to the event that you recalled:

When faced with situations such as this, people often have thoughts about how things might have turned out differently. Sometimes these thoughts can be about things that would have made the situation worse ("At least...," "I am glad that X did not happen," "Things would have been worse if...," "I could have done X worse," etc.). For example, a student who does worse than expected on an exam might tell himself/herself "at least I didn't fail, it could have been worse." You may have thoughts about how this event could have turned out worse or you may have no such thoughts at all. If you have such thoughts please list the thoughts or imaginings you have about how the situation could have been worse.

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 worse. For example, you may have had such thoughts to make yourself feel better about the situation, to think about what could be done in the future, or you may have not consciously wanted to have such thoughts.
Thoughts about How Things Could Have Been Worse

Note: These questions ask about thoughts you have about how things could have been worse. If you have no such thoughts, please skip this page and move on to the next page.

1. When you originally had these thoughts, did you feel that you effortfully brought these thoughts to mind?
   not at all 1 2 3 4 5 6 7 very much so

2. When you originally had these thoughts, did you feel that these thoughts were automatically (i.e., not voluntarily) brought to mind?
   not at all 1 2 3 4 5 6 7 very much so

3. When you originally had these thoughts, did you feel that you consciously brought these thoughts to mind?
   not at all 1 2 3 4 5 6 7 very much so

4. When you originally had these thoughts, did you want to have them?
   not at all 1 2 3 4 5 6 7 very much so

5. Do you think you had these thoughts to cope with the situation?
   not at all 1 2 3 4 5 6 7 very much so

6. Do you think you had these thoughts to help you improve in the future?
   not at all 1 2 3 4 5 6 7 very much so

7. Do you think you had these thoughts to feel better about the situation?
   not at all 1 2 3 4 5 6 7 very much so

8. Do you think you had these thoughts to learn from what happened?
   not at all 1 2 3 4 5 6 7 very much so
9. When you think about *ways the situation could have been worse* how do these thoughts change your mood? (Please rate your mood below).

<table>
<thead>
<tr>
<th>Feeling</th>
<th>Scale</th>
<th>Example Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>I felt more happy</td>
<td>not at all</td>
<td>1 2 3 4 5 6 7</td>
</tr>
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<td>1 2 3 4 5 6 7</td>
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<td>1 2 3 4 5 6 7</td>
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<td>1 2 3 4 5 6 7</td>
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<td>not at all</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I felt more angry</td>
<td>not at all</td>
<td>1 2 3 4 5 6 7</td>
</tr>
</tbody>
</table>

1 = not at all, 7 = extremely
Ratings of the Event

Please circle the number that corresponds to how you felt about the event:

1) Please rate how **pleasant** the event you described was:

   extremely unpleasant event in my life
   1 2 3 4 5 6 7 8 9 extremely pleasant event in my life

2) Please rate how **traumatic** the event was for you:

   not at all traumatic 1 2 3 4 5 6 7 8 9 extremely traumatic

3) Please rate how **stressful** the event was for you:

   not at all stressful 1 2 3 4 5 6 7 8 9 extremely stressful

4) How **vivid** was the visual imagery you had when thinking about or describing the event?

   not at all vivid 1 2 3 4 5 6 7 8 9 extremely vivid

6) How long ago did the event occur? Please check the timeframe that best applies:

   [ ] In the past 0-6 months.
   [ ] Between 6 months to 1 year ago.
   [ ] Between 1 year to 2 years ago.
   [ ] Between 2 to 5 years ago.
   [ ] Over 5 years ago.

6) To what degree do you believe you had control over the event?

   not at all in my control
   1 2 3 4 5 6 7 8 9 completely in my control

7) To what degree do you think the event was caused by your own actions?

   not at all caused by my own actions
   1 2 3 4 5 6 7 8 9 completely caused by my own actions

8) To what degree do you think the event was caused by factors outside of your control?

   not at all caused by external factors
   1 2 3 4 5 6 7 8 9 completely caused by external factors

9) How likely do you think it is that you will experience a similar event in the future?

   not at all likely
   1 2 3 4 5 6 7 8 9 extremely likely
Please respond to the following statements by circling the number that best applies.

<table>
<thead>
<tr>
<th></th>
<th>1 STRONGLY DISAGREE</th>
<th>2 MODERATELY DISAGREE</th>
<th>3 UNSURE</th>
<th>4 MODERATELY AGREE</th>
<th>5 STRONGLY AGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I enjoy being unique and different from others in many respects</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. I feel comfortable using someone’s first name soon after I meet them, even when they are much older than I am.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. Even when I strongly disagree with group members, I avoid an argument.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. I have respect for the authority figures with whom I interact.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. I do my own thing, regardless of what others think.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. I respect people who are modest about themselves.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. I feel it is important for me to act as an independent person.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. I will sacrifice my self-interest for the benefit of the group I am in.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. I’d rather say “No” directly, than risk being misunderstood.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. Having a lively imagination is important to me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11. I should take into consideration my parents’ advice when making education/career plans.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12. I feel my fate is intertwined with the fate of those around me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13. I prefer to be direct and forthright when dealing with people I’ve just met.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14. I feel good when I cooperate with others.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15. I am comfortable with being singled out for praise or rewards.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>16. If my brother or sister fails, I feel responsible.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>17. I often have the feeling that my relationships with others are more important than my own accomplishments.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>18. Speaking up during a class (or a meeting) is not a problem for me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>19. I would offer my seat in a bus to my professor (or my boss).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>20. I act the same way no matter who I am with.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>21. My happiness depends on the happiness of those around me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>22. I value being in good health above everything.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
23. I will stay in a group if they need me, even when I am not happy with the group. ..............

24. I try to do what is best for me, regardless of how that might affect others. ..............

25. Being able to take care of myself is a primary concern for me. ..............

26. It is important to me to respect decisions made by the group. ..............

27. My personal identity, independent of others, is very important to me. ..............

28. It is important for me to maintain harmony within my group. ..............

29. I act the same way at home that I do in school. ..............

30. I usually go along with what others want to do, even when I would rather do something different. ..............
Please rate your disagreement or agreement with the following statements:

<table>
<thead>
<tr>
<th></th>
<th>STRONGLY Disagree</th>
<th>MODERATELY Disagree</th>
<th>UNSURE</th>
<th>MODERATELY Agree</th>
<th>STRONGLY Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>At times I think I'm no good at all.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>I certainly feel useless at times.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>I wish I could have more respect for myself.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4.</td>
<td>On the whole, I am satisfied with myself.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5.</td>
<td>I take a positive attitude toward myself.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6.</td>
<td>I feel I do not have much to be proud of.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7.</td>
<td>I am able to do things as well as most other people.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8.</td>
<td>All in all, I am inclined to feel that I am a failure.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9.</td>
<td>I feel that I have a number of good qualities.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10.</td>
<td>I feel that I'm a person of worth, at least on an equal basis with others.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

For each of the following statements and/or questions, please circle the point on the scale that you feel is most appropriate in describing you.

1. In general, I consider myself:

   1  2  3  4  5  6  7
   not a very happy person
   a very happy person

2. Compared to most of my peers, I consider myself:

   1  2  3  4  5  6  7
   less happy
   more happy

3. Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you?

   1  2  3  4  5  6  7
   not at all
   a great deal

4. Some people are generally not very happy. Although they are not depressed, they never seem as happy as they might be. To what extent does this characterization describe you?

   1  2  3  4  5  6  7
   not at all
   a great deal
Demographic Measures

Please answer the following demographic items:

Gender (please circle):  Female     Male

Age: __________

Year: __________

What is your intended major? __________________________

Please state your country of birth: _______________________  

If you were not born in Canada, what year did you move to Canada? ______

What country were your parents born in?

Mother? __________________________

Father? __________________________

What is your ethnic descent? (i.e., German/Italian, Chinese etc.) __________________________