

Free Will, Counterfactual Reflection, and the Meaningfulness of Life Events

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Abstract

Research has found that counterfactual reflection, the act of mentally undoing past events, imbues major life experiences with meaning. The current studies examined whether individual differences in free will beliefs moderate this relationship. Participants described a significant event in their lives, were randomly assigned to counterfactual or factual reflection about the event, and completed measures of meaning and free will. Two studies found that counterfactual reflection enhanced the meaningfulness of life events for people with high belief in free will but not for people with low belief in free will. These studies suggest that beliefs in free will are an important factor in meaning-making processes.

Keywords

counterfactuals, free will, meaning

A historian's work involves creating an accurate depiction of past events. However, historians do more than relay facts and figures; they investigate the past as it relates to the present and communicate the importance of an event's unfolding. Like historians, people often reflect about their life in the present by examining important past events. One mechanism individuals may use to examine their life's unfolding is counterfactual thinking. This is where a person imagines all the possible paths he or she might have taken at a particular moment in time (Roese & Olson, 1995). Recent research suggests that counterfactual thinking serves an inherent meaning-making function that can make choices and behaviors feel more meaningful and significant (Galinsky, Liljenquist, Kray, & Roese, 2005; Heintzelman, Christopher, Trent, & King, 2013; Kray et al., 2010; Kray, Hershfield, George, & Galinsky, 2013). The purpose of the current studies was to build on this research by examining whether individual differences in beliefs about free will moderate the relationship between counterfactual thinking and meaning. Specifically, our studies examined the hypothesis that belief in free will amplifies the link between counterfactual thought and the experience of meaning in major life events.

could have been better (upward counterfactuals; e.g., if only I had earned better grades, then I would have gotten into a better college) or how things could have been worse (downward counterfactuals; e.g., if I hadn't gone to this college, I wouldn't have met my best friend). Counterfactual thoughts influence emotional states and impact a variety of social judgments (Markman, Karadogan, Lindberg, & Zell, 2009; Sherman & McConnell, 1995, 1996). Importantly, counterfactuals also influence how we understand and make sense of situations (Kray et al., 2013; McGill & Tenbrunsel, 2000; Spellman & Mandel, 1999).

When people engage in counterfactual thinking, they make causal inferences that highlight how events are intricately tied to one another (Kray et al., 2013; Roese & Olson, 1995; Wells & Gavanski, 1989). By making us aware of the unique sequence of events that led to our current circumstances, counterfactual thinking enhances the feeling that those events were significant and meaningful. Several studies have demonstrated that counterfactual thinking indeed instills major life experiences with meaning. Kray and colleagues (2010) found that counterfactual thinking made both the decision to attend a particular college and a first encounter with a close friend more meaningful. Similarly, writing counterfactually about

Counterfactuals, Meaning Making, and Fate

Counterfactual thoughts are mental representations of alternatives to past occurrences, features, and states and typically take the form of an if-then proposition in which the "if" specifies an alternative action and the "then" describes an alternative outcome. Counterfactuals can focus on how things

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one's birth led participants to report greater presence of meaning, purpose, and satisfaction with their lives in general (Heintzelman et al., 2013). This research suggests that the act of mentally undoing past occurrences can amplify their significance.

The effect of counterfactuals on meaningfulness may be explained, at least in part, by the fact that counterfactual reflection about a critical moment intensifies the feeling that the event *had* to happen (Galinsky et al., 2005; Kray et al., 2010; Lindberg, Markman, & Choi, 2013). That is, imagining a world in which a critical event had not occurred highlights the importance and uniqueness of that event. As a result, that event now feels like a part of your destiny, and it was fated to happen. Previous research has found support for the role of fate in counterfactual thinking and meaning making. For example, Lindberg (2011) found that counterfactual thinking increased fate attributions when examining the outcome of an unexpected event, and Kray et al. (2010) found that counterfactual thinking created meaning in personal narratives by strengthening perceptions that certain moments in life were "meant to be."

Given the central role that imagining alternative possibilities play in counterfactual thinking, individual differences in the extent to which people generally believe that such alternatives are possible may shape the potential consequences of counterfactual thinking. Belief in free will is one relevant individual difference that characterizes how people understand the causal relationship between themselves and the world. Whereas belief in fate rejects the possibility of counterfactual alternatives and makes an event seem more meaningful because it was "meant to be," belief in free will embraces the possibility of many counterfactual alternatives that could have been freely chosen. We suggest that the sense of agency and choice inherent in free will beliefs might make counterfactual alternatives more conceivable and thus contribute to the experience of meaning by underscoring the path one has chosen to take.

Individual Differences in Free Will

Free will generally refers to the ability to freely choose one's own actions and determine one's own outcomes¹ (Aarts & van den Bos, 2011; Bergner & Ramon, 2013; Mele, 2006; Stillman & Baumeister, 2010). Although the precise definition of what it means to "freely choose one's own actions" is an unsettled issue in philosophical circles, this description is consistent with the lay understanding of free will (Monroe & Malle, 2010; Stillman, Baumeister, & Mele, 2011). Despite debates regarding the actual existence or nonexistence of free will (e.g., Bargh, 2008; Wegner, 2002; see also Baumeister, 2008), research suggests that *belief* in free will has meaningful consequences (Baumeister & Brewer, 2012). For instance, when disbelief in free will was induced, participants were more likely to cheat on arithmetic and cognitive tasks (Vohs & Schooler, 2008), were more aggressive and less helpful (Baumeister, Masicampo, & DeWall, 2009), and were more

likely to conform in social situations (Alquist, Ainsworth, & Baumeister, 2013). Belief in free will is also positively associated with meaning in life and satisfaction with life (Bergner & Ramon, 2013). Taken together, the feeling that people can freely choose actions among many potential alternatives and exercise control over the potential outcomes of a situation makes belief in free will a promising individual difference to examine. We argue that belief in free will has particular relevance in the relationship between counterfactual thinking and meaning making.

In our studies, we focus on how lay beliefs in free will moderate the relationship between counterfactual thinking and finding meaning in life events. Belief in free will and counterfactual reflection share one important characteristic that may enable them to contribute to the meaningfulness of life events: They both presuppose that a particular event or outcome could have been otherwise. In fact, the mutability of events, or how easily events might have been different, is central in generating counterfactual scenarios (Wells & Gavanski, 1989). In particular, research has demonstrated that causes of events are more mutable than effects of events (Wells, Taylor, & Turtle, 1987), actions are more mutable than inactions (Catellani & Milisi, 2001; Kahneman & Miller, 1986; Landman, 1987), and controllable events are more mutable than uncontrollable events (Catellani & Milesi, 2001; Markman, Gavanski, Sherman, & McMullen, 1995). Similarly, belief in free will emphasizes the mutability of one's own actions at any given point in time; that is, one could always act differently. The sense of personal choice and control over one's outcomes afforded by free will beliefs could potentially make events and experiences seem more meaningful and significant than they otherwise would because the action chosen was selected from a nearly limitless number of possibilities. When people with high belief in free will engage in counterfactual reflection, these unchosen alternatives should be highlighted, emphasizing the importance of the particular choice that was made and the events that did occur. Because belief in free will enhances the sense of agency, choice, and control people experience when making decisions, counterfactual reflection may have a particularly strong effect on the meaningfulness of events for people with high free will beliefs.

Overview of the Current Studies

In the present research, we tested whether the relationship between counterfactual reflection and meaning making is moderated by beliefs in free will. Across two studies, participants described a significant event in their lives, wrote about the event counterfactually or factually, and reported the meaningfulness of the event and their beliefs about free will. We predicted that free will beliefs would interact with counterfactual reflection to predict the perceived meaningfulness of major life events such that participants reporting greater free will beliefs would find major life events more meaningful under counterfactual reflection compared to other participants.

Study 1

The goals of Study 1 were threefold. We first sought to replicate Kray et al.'s (2010) finding that counterfactual reflection increases the meaningfulness of life events. Second, we explored whether free will beliefs would influence perceptions of meaning. Finally, as a test of our main hypothesis, we examined whether free will beliefs would interact with counterfactual reflection to predict perceptions of meaning in life events.

Method

Participants

Ninety undergraduate students (66 women and 24 men; age $M = 19.30$, $SD = 3.09$) recruited from the Texas A&M University psychology subject pool participated in the study for partial completion of course requirements. Participants were predominantly White (67.8%) and non-Hispanic (81.1%).

Material and Procedure

Participants were escorted to a private computer and were informed that they would be participating in a study exploring their personality and attitudes. Participants then completed the measures described and were debriefed following the completion of the study.

Event. Participants were first asked to think about an important event in their lives. Specifically, they were instructed to:

Think about an important event in your life. For example, think about your first job, meeting your best friend, the beginning or end of a romantic relationship, where you decided to go to college, etc. Please describe the event you are thinking about in a few words below.

Writing condition. Next, participants were randomly assigned to one of the two writing tasks adapted from Kray et al. (2010). Writing condition was manipulated by having participants describe how their life would be now if the event had never occurred (counterfactual writing condition) or describe the event exactly as it happened (factual writing condition). Specifically, participants in the counterfactual writing condition read the following instructions:

For this next task, we would like you to describe how your life would be now if the event had never occurred. Please write about who you would be, where you might be, the relationships you might have, the beliefs, values, and feelings that might characterize you, or any other details about this alternate world that you can imagine.

Participants in the factual writing condition read the following instructions:

Table 1. Mean and Standard Deviation of Type of Life Event Statement by Type of Reflection.

	Counterfactual Reflection		Factual Reflection	
	M	SD	M	SD
Study 1				
Type of important event statement				
Negative factual	0.02	0.15	1.31	2.18
Positive factual	0.47	0.99	1.42	1.42
Neutral factual	0.56	1.12	3.47	2.70
Downward counterfactual	1.98	1.66	0.00	0.00
Upward counterfactual	0.67	1.38	0.00	0.00
Neutral counterfactual	0.67	1.09	0.00	0.00
Study 2				
Type of turning point statement				
Negative factual	0.62	1.41	2.63	3.31
Positive factual	0.38	0.78	1.55	2.00
Neutral factual	0.62	1.29	2.68	2.88
Downward counterfactual	2.15	1.50	0.00	0.00
Upward counterfactual	0.49	1.05	0.00	0.00
Neutral counterfactual	0.33	0.62	0.00	0.00

For this next task, we would like you to describe exactly what happened, when it happened, who was involved, what you were thinking and feeling, what happened right before and right after the incident occurred, or any other factual aspects of the incident that you can recall.

As in Kray et al. (2010), the content of the written responses was coded by two independent judges. They were instructed to code a response as a counterfactual only when there was clear evidence that an alternative to reality had been considered ($\kappa = .96$; 95% confidence interval [CI]: [.93, .99]; $p < .0005$). Additionally, each statement was coded for valence ($\kappa = .74$; 95%CI: [.68, .79]; $p < .0005$). For counterfactual statements, they were coded as to whether it contained a downward counterfactual (worse alternative), upward counterfactual (better alternative), or neutral counterfactual (neutral alternative). For factual statements, they were coded as to whether it contained a negative, positive, or neutral statement. Discrepancies between judges were resolved by a third judge (see Table 1 for descriptive data).

Meaning. To assess the meaningfulness of the event, participants indicated their agreement with two statements using a 7-point scale (1 = *strongly disagree* and 7 = *strongly agree*) modified from Kray et al.'s (2010) study. The 2 items were, "This event has added meaning to my life" and "This event was one of the most significant events in my life." Responses were averaged across the 2 items to produce a composite Meaningfulness of Event score ($M = 5.80$, $SD = 1.21$, $\alpha = .70$).

Free will beliefs. Belief in free will was assessed using The Free Will Inventory (Nadelhoffer, Nahmias, Shepard, Sripada, & Ross, 2014). The Free Will Inventory is a reliable and valid measure of free will that improves upon existing scales by treating beliefs in free will, determinism, and dualism as independent constructs and used a more representative community sample (i.e., compared to college student samples) in scale construction (Nadelhoffer et al., 2014). Participants indicated their agreement with each statement using a 7-point scale (1 = *strongly disagree* and 7 = *strongly agree*). Example items from the 5-item free will subscale include, “How people’s lives unfold is completely up to them” and “People ultimately have complete control over their decisions and their actions.” Responses were averaged across the free will items to produce a composite Belief in Free Will score ($M = 5.40$, $SD = 1.16$, $\alpha = .86$).

Results and Discussion

To examine the influence of belief in free will and writing condition on the meaningfulness of the event, a hierarchical regression equation was computed. Belief in free will was standardized, and writing condition was dummy coded (0 = *factual condition* and 1 = *counterfactual condition*), and the product of these variables was used as the interaction term (Aiken & West, 1993). The main effects of counterfactual reflection ($\beta = .010$, $p = .925$) and belief in free will ($\beta = .095$, $p = .378$) entered in the first step of the regression equation (R^2 change = .009, $p = .667$) did not contribute significantly to the meaningfulness of the event. However, as predicted, the Belief in Free Will \times Writing Condition interaction entered in the second step did contribute significantly to R^2 ($\beta = .362$, $p = .024$; R^2 change = .058).² Simple slope analyses revealed that beliefs in free will³ significantly predicted meaning in the counterfactual condition ($\beta = .347$, $p = .020$) but not in the factual condition ($\beta = -.156$, $p = .306$). Results are illustrated in Figure 1. As predicted, counterfactual reflection led participants with strong free will beliefs to perceive an event in their lives as more meaningful compared to those with less belief in free will or those who engaged in factual reflection.

Study 2

Study 1 found that participants who reported greater belief in free will found events in their lives to be more meaningful after counterfactual reflection than those who reported less belief in free will. Contrary to previous research, counterfactual reflection alone did not increase the meaningfulness of the event. It is important to note that in Study 1, we asked participants to write and think about an important event in their lives, whereas Kray et al. (2010) asked participants to write and think about a “turning point” in their lives. The nonsignificant main effect of writing condition was unexpected, as we didn’t anticipate that this minor change in the writing prompt would greatly influence the results. To instill greater

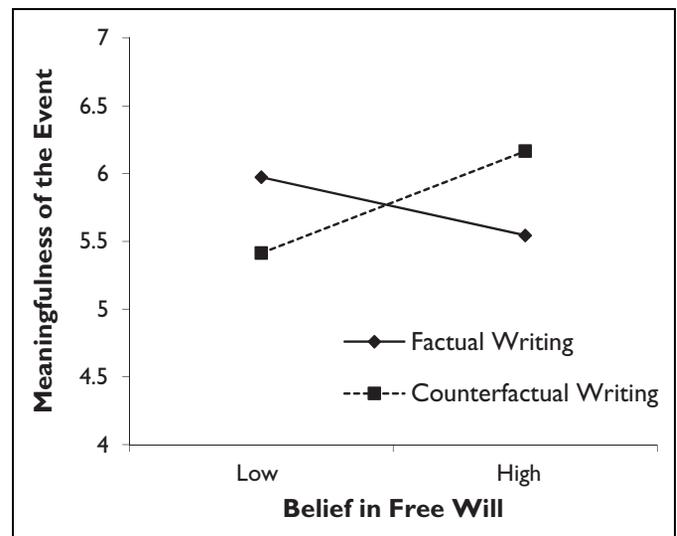


Figure 1. Meaningfulness of the event as a function of writing task and belief in free will in Study 1. Predicted values are plotted at ± 1 SD from the mean of belief in free will.

confidence in our findings, Study 2 used the exact wording from Kray et al.’s turning point prompt.

Method

Participants

Seventy-nine undergraduate students (43 women and 36 men; age $M = 19.25$, $SD = 1.16$) recruited from the Texas A&M University psychology subject pool participated in the study for partial completion of course requirements. Participants were predominantly White (77.2%) and non-Hispanic (75.9%).

Material and Procedure

Study 2 used the same structure and materials as Study 1 except the writing task was identical to the one used by Kray et al. (2010). Instead of describing an “important event” in their lives, participants were asked to describe a “turning point.” Following Kray and colleagues’ methods, participants read the following definition provided by McAdams (2001) and identified a turning point:

Turning points are not very common moments or episodes in a person’s life in which rapid, intense, and clear change occurs, such that the person and his or her life is never the same again. Turning points can be initiated by a person or from forces outside of the individual. (pp. 109–110)

Participants were then randomly assigned to the counterfactual or factual writing condition described in Study 1. As in Study 1, written responses were coded by two independent judges on the following dimensions: presence of a counterfactual ($\kappa = .94$; 95% CI: [.91, .98]; $p < .0005$) and valence ($\kappa = .67$; 95% CI: [.62, .73]; $p < .0005$). Counterfactual statements were coded as downward, upward, or neutral. Factual statements

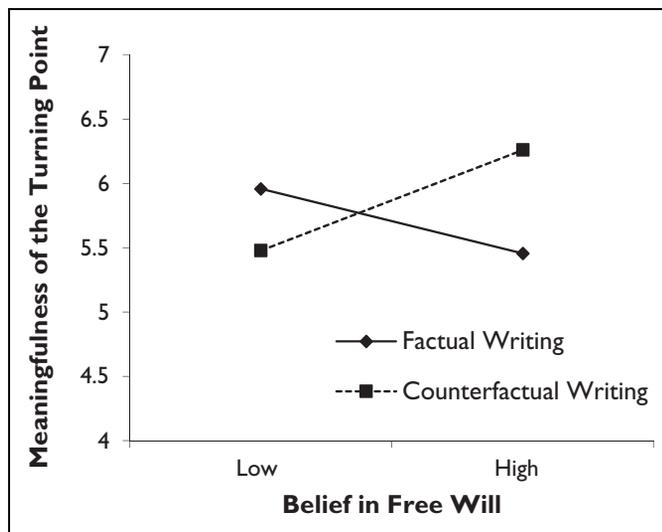


Figure 2. Meaningfulness of the turning point as a function of writing task and belief in free will in Study 2. Predicted values are plotted at ± 1 SD from the mean of belief in free will.

were coded as negative, positive, or neutral. Discrepancies between judges were resolved by a third judge (see Table 1).

Finally, they completed meaning items related to the turning point (e.g., “This turning point has added meaning to my life” and “This turning point was one of the most significant events in my life;” $M = 5.78$, $SD = 1.31$, $\alpha = .82$) and the same measure of free will ($M = 5.40$, $SD = 1.01$, $\alpha = .85$) described in Study 1 (Nadelhoffer et al., 2014).

Results and Discussion

Following the analyses described in Study 1, the main effects of counterfactual reflection ($\beta = .063$, $p = .584$) and belief in free will ($\beta = .074$, $p = .520$) entered in the first step (R^2 change = .009, $p = .705$) of the regression equation did not contribute significantly to the meaningfulness of the turning point. However, the Belief in Free Will \times Writing Condition interaction entered in the second step was associated with the meaningfulness of the turning point ($\beta = .360$, $p = .032$; R^2 change = .059). Simple slope analyses again revealed that belief in free will significantly predicted meaning in the counterfactual condition ($\beta = .340$, $p = .034$) but not for the factual writing condition ($\beta = -.170$, $p = .294$). Results are illustrated in Figure 2. In line with Study 1, participants who reported greater beliefs in free will and engaged in counterfactual reflection found more meaning in their turning points compared to those with less belief in free will.

General Discussion

The present research examined whether beliefs in free will moderated the relationship between counterfactual reflection and meaning. Two studies found that free will beliefs and reflection condition significantly interacted to predict the meaningfulness of important events and major turning points,

such that people with greater beliefs in free will found events to be more meaningful when they engaged in counterfactual reflection. Together, these studies suggest that free will beliefs influence the experience of meaning by highlighting the causal role we might play in an event’s unfolding.

Both studies demonstrated that counterfactual reflection led participants to impart more meaning to important life events if they had strong beliefs in free will but not if they had relatively weak free will beliefs. We argue that these experiences become meaningful because belief in free will and counterfactual reflection both emphasize the mutability of one’s own actions and are invariably tied to choice and control. The very concept of free will suggests that individuals have options of performing different actions in any particular situation (Baumeister, Bauer, & Lloyd, 2010). Additionally, belief in free will is positively associated with internal locus of control (Paulhus & Carey, 2011; Stillman et al., 2011), is argued to promote willingness to exercise effortful control over one’s behavior (Stillman et al., 2010), and has been linked to self-agency (Aarts & van den Bos, 2011). High free will beliefs seem to amplify the meaning of events through the idea that people truly dictate their own actions and outcomes. The act of counterfactual reflection naturally directs our attention to how our personal actions have led us to where we are today. If individuals believe they have the ability to shape events in their lives and are easily able to imagine how things could have happened differently, these experiences become more meaningful. In line with these ideas, research has found that strengthening free will beliefs leads people to imagine greater counterfactual possibilities (Alquist, Ainsworth, Baumeister, Stillman, & Daly, 2010; as cited in Baumeister & Brewer, 2012). The possibility that other freely chosen actions can alter current reality amplifies the significance of life events.

Across our studies, the main effect of factual/counterfactual writing condition on perceived meaningfulness of life events did not emerge. One potential explanation is that the reflection manipulation was not as effective in the current studies compared to Kray et al.’s (2010) original research. For example, participants in the current research did not generate as many counterfactual statements as the participants in Kray et al.’s study (Study 1: approximately 4; Study 2: approximately 3; Kray et al.’s experiment 4: approximately 7).⁴ Moreover, our sample did not generate as many downward counterfactual thoughts (Study 1: approximately 2; Study 2: approximately 2; Kray et al.’s experiment 4: approximately 5). Kray et al. contend that the imagination of a worst possible world is an important mechanism in producing feelings that certain events are fated; this sense of fate is what contributes meaning to turning point events. Because our sample did not generate as many downward counterfactuals, potentially minimizing the impact of worse alternate realities, the manipulation itself might not have been as successful at promoting meaning.

Another possible explanation of our inability to replicate previous research is that participants in our samples differed

from those of Kray et al. (2010) on important variables relevant to counterfactual reflection. For instance, demographics on our college samples suggest that they were likely more religious than those used in previous research (only 3% of participants from Study 1 and 10% of participants from Study 2 reported atheist/agnostic religious beliefs). Religious beliefs are associated with global (e.g., living life according to "God's Plan") and situational (e.g., God's guidance in ordinary and stressful life events) meaning (Park, 2013). If the students from our sample were indeed more religious than those in previous studies, it is possible that they possess chronically accessible perceptions of meaning in life (e.g., Batson & Stocks, 2004), which could have attenuated the effectiveness of the counterfactual manipulation. The sense of meaning already inherent in their life events may make highly religious individuals more resistant to changing the meaning of important life events. In such a case, comparing the content of participants' life experiences between samples may be particularly informative, as the topics participants write about may vary widely in dimensions relevant to how responsive they are to counterfactual reflection. For instance, the decision to attend a particular college may be more mutable than one's first Holy Communion.

An important distinction between our studies is that Kray and colleagues suggest that fate *mediates* the relationship between counterfactual thinking and meaning, while our research demonstrated that free will beliefs *moderate* the same effect. These complementary findings suggest that there are important boundary conditions to consider when examining how counterfactual reflection may enhance meaning (Greenwald, Pratkanis, Leippe, & Baumgardner, 1986). For example, it is conceivable that counterfactuals do not enhance meaning for individuals with an elevated belief in fate. In our previous research (Seto, Hicks, Smallman, & Davis, 2012), religiosity, religious fundamentalism, and religious commitment had strong, positive correlations with self-reported belief in fate.⁵ As such, religious individuals may find counterfactual reflection less effective in promoting meaning because their greater belief in fate may create a ceiling effect. Interestingly, in our same research, self-reported belief in fate was negatively correlated with self-reported belief in free will, suggesting that these two constructs are not entirely independent (see Note 5). Further, some researchers (e.g., Baumeister et al., 2010) argue that religion should foster belief in free will, as it helps individuals engage in moral behaviors by exercising choice and effortful self-control. Indeed, research has found that intrinsic religiosity is positively correlated with belief in free will (Carey & Paulhus, 2013). Although religious individuals may believe in God's plan, they may also acknowledge the freedom of choice in their actions. The sense of choice inherent in their actions and behaviors may augment the perception of meaning when they engage in counterfactual reflection. In evaluating when one mechanism might operate over the other, future research should consider the unique belief systems of their sample.

Despite not demonstrating the main effect reported by Kray and colleagues (2010), our results extend their

provocative findings by illustrating that the effect of counterfactual reflection on meaning is most evident for people high in free will beliefs, highlighting the importance of considering relevant individual differences when examining this relationship. For example, need for cognitive closure (NFC) refers to individuals who prefer definitive answers and dislike ambiguity (Kruglanski & Webster, 1996). Counterfactual reflection may be less effective for those high in NFC, as they may have fewer penchants for considering alternate possibilities. Future research should continue to explore the role of free will beliefs and other potentially relevant individual differences in the relationship between counterfactual thinking and perceptions of meaning.

Conclusion

People have a fundamental need to make sense of the events in their lives. Just like historians who study how events are linked together, people often imagine alternate realities when considering how their lives have unfolded. The current studies demonstrated that counterfactual reflection and belief in free will are two mechanisms that have the potential to work in tandem to help individuals evaluate and understand major milestones in their personal narratives. The notion that our personal actions have led us to where we are today makes pivotal life events more significant and meaningful. The ability to imagine what might have been and embracing the notion of free will are both important components of the meaning-making toolbox.

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Notes

1. It is important to note that free will beliefs are distinct from locus of control (Baumeister & Brewer, 2012). Although both constructs are conceptually similar, belief in free will also encompasses a sense of moral responsibility for one's actions (Paulhus & Carey, 2011). Additionally, the inconsistent relationships between free will and locus of control suggest that they are independent constructs (e.g., Paulhus & Carey, 2011; Rakos, Laurene, Skala, & Slane, 2008; Stillman et al., 2011; Waldman, Viney, Bell, Bennett, & Hess, 1983).
2. We also investigated belief in determinism as another potential moderator using the Nadelhoffer, Nahmias, Shepard, Sripada, and Ross (2014) scale. Determinism refers to the belief that all events are completely determined by prior events or causes (Bergner & Ramon, 2013). We had competing hypotheses that during counterfactual reflection, greater belief in determinism could potentially augment meaning by cementing the idea that all life events are causally determined or it may lead to a detriment to

meaning as determinism takes away an individual's sense of choice in their actions. The moderating role of determinism was not supported as the Determinism \times Writing Condition interaction did not significantly predict perceptions of meaning in Study 1 ($\beta = -.078, p = .641; R^2$ change = .003) or Study 2 ($\beta = -.045, p = .785; R^2$ change = .001).

3. A *t*-test for independent samples examined whether writing condition affected reported free will beliefs. Results did not reveal a significant difference in belief in free will between participants who engaged in counterfactual reflection ($M = 5.50, SD = 1.23$) and factual reflection ($M = 5.30, SD = 1.09$) in Study 1, $t(88) = .815, p = .417$, or counterfactual reflection ($M = 5.37, SD = 1.07$) and factual reflection ($M = 5.43, SD = .97$) in Study 2, $t(77) = -.221, p = .826$.
4. Correlational analyses revealed a marginally significant positive correlation between the total number of counterfactual statements and meaning in the counterfactual condition in Study 1, $r(43) = .281, p = .062$. However, the relationship was not significant in Study 2, $r(37) = .046, p = .783$.
5. In two studies, face-valid items measuring belief in fate were positively correlated with religiosity, $r(136) = .446, p = .000; r(116) = .447, p = .000$, religious fundamentalism, $r(136) = .547, p = .000; r(116) = .544, p = .000$, and religious commitment, $r(136) = .573, p = .000; r(116) = .516, p = .000$. Belief in fate was negatively correlated with belief in free will, $r(136) = -.382, p = .000; r(116) = -.457, p = .000$.

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