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This Too Shall Pass:
Temporal Distance and the Regulation of Emotional Distress

By

Emma L Bruehlman-Senecal

A dissertation submitted in partial satisfaction of the
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in

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in the

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of the

University of California, Berkeley

Committee in charge:

Professor Ozlem N Ayduk, Chair

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Abstract

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Doctor of Philosophy in Psychology

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Does the time perspective people adopt when reflecting on stressful events influence how they respond emotionally to these events? If so, through what cognitive pathway(s) does it have this effect? Part 1 of my dissertation examined these questions in a series of seven studies. Studies 1a, 1b, and 2 tested the hypothesis that adopting a distant-future perspective on recent stressors (relative to a near-future or control perspective) reduces emotional distress, examining four potential mediators of this effect. Study 3 built upon the prior studies by investigating whether their findings apply to a new domain and affect longer-term outcomes. Studies 4-6 centered on a key cognitive mechanism that helped to account for the distress-reducing properties of temporal distancing across our first three studies—impermanence focus. Studies 4 and 5 examined whether individual differences in impermanence focus predicted emotional reactions to negative events in a manner similar to adopting a distant-future perspective. Study 6 manipulated impermanence focus to test whether it affected emotional reactions to stressors in a manner parallel to adopting a distant-future perspective.

Part 2 of my dissertation examined boundary conditions of the buffering effects of temporal distancing—exploring conditions under which temporal distancing might amplify rather than reduce emotional distress. However, very few moderators of the link between temporal distancing and reduced distress were found, and those that were identified were weak. Taken together, these studies demonstrate that temporal distancing plays an important role in emotional coping with negative events, and that it does so by directing individuals' attention to the impermanent aspects of these events. Moreover, temporal distancing appears to be a strategy that effectively reduces the distress associated with a wide variety of stressors, for a broad range of individuals.

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This Too Shall Pass: Temporal Distance and the Regulation of Emotional Distress

A romance fizzles and dissolves. A student fails an important exam. A couple files for bankruptcy. These are just a few events that can bring distress and disruption to the lives of the people they befall. While these and similar stressful events can cause acute distress, research suggests that the pain evoked by them is likely to fade with the passage of time (e.g., Gilbert, Pinel, Wilson, Blumberg, & Wheatly, 1998). Numerous folk sayings, such as “time heals all wounds” and “this too shall pass,” reflect this understanding. Yet it is unclear whether people are capable of drawing upon this insight to manage their distress while their emotional wounds are still fresh and painful. The present studies address this question by testing whether and how encouraging people to put stressful events into a broader time perspective (i.e., temporal distancing from these events) helps them to regulate their distress.

What is Temporal Distancing?

Humans have a unique capacity for mental time travel. We can transcend the here-and-now by envisioning the past and imagining the future, acts that we perform frequently and with relative ease (D’Argembeau, Renaud, & Van der Linden, 2011; Klinger & Cox, 1987). Our ability to reflect on the past and visualize the future can be a source of great pleasure, as when we reflect nostalgically on fond memories of time spent with friends (e.g., Wildschut, Sedikides, Arndt, & Routledge, 2006) or eagerly imagine a future vacation (e.g., Quoidbach, Wood, & Hansenne, 2009). However, this ability can also be a source of great pain, as when we ruminate on past failures (e.g., Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008), or worry about potential future misfortune (e.g., Davey & Tallis, 1994).

The ability to engage in mental time travel, and the psychological consequences of doing so, has received considerable attention within the Construal Level Theory (CLT) literature. CLT is concerned with how the degree of temporal distance between perceivers and the objects of their perception shapes the way they construe and respond to these objects. While CLT research is concerned with the manner in which people construe both the past and the future, for the purpose of this paper we focus exclusively on people’s perceptions of their future. When imagining the future, people can adopt a relatively near-future perspective (e.g., envisioning events or their lives in the coming days and weeks) or a relatively distant-future one (e.g., imagining events or their lives in the coming year(s)). Prior research demonstrates that people tend to construe distant-future events and objects in a more abstract and schematic manner than near-future ones, a tendency that has implications for their future predictions, preferences, and even the basic manner in which they process information (for a review see Trope & Liberman, 2010). However, little is known about whether and how the temporal perspective people adopt when reflecting on distressing events affects their emotional reactions to these events. This gap in the literature is notable, given the preliminary evidence, reviewed below, to suggest that reappraisal strategies that involve placing negative experiences into a broader perspective play a key role in the regulation of distress.

Does Temporal Distancing Reduce Emotional Distress?

Despite the folk wisdom that focusing on the healing power of time alleviates emotional distress, the benefits of temporal distancing from negative experiences remain unclear. This is

not to say that psychologists have overlooked the potential role of mental time travel in emotion regulation. On the contrary, several studies have investigated how temporal distancing, in combination with other perspective-broadening reappraisal strategies, mitigates negative affect. “Perspective-broadening” or “bigger picture” reappraisal strategies have been loosely defined as strategies that emphasize the ability to “see the bigger picture regarding a discrete event by adopting a broader perspective toward it” (Schartau, Dalgleish, & Dunn, 2009). Temporal distancing and other perspective-broadening strategies are considered to be forms of reappraisal because they involve the act of “construing a potentially emotion-eliciting situation in a way that changes its emotional impact” (Gross & John, 2003).

In studies of perspective-broadening strategies, participants have been instructed to *simultaneously* apply several of these tactics towards a single negative event, including adopting an outside, observer-like “self-distanced” perspective on it, and placing it in a broader human context (e.g., reminding oneself that all people experience stress and loss), in addition to temporal distancing (Schartau et al., 2009; Rude, Mazzetti, Pal, & Stauble, 2011). Similarly, participants in one cognitive reappraisal study were encouraged to use the reappraisal “things will improve with time”, in conjunction with other reappraisals such as “what’s happening is not real” and “things aren’t as bad as they appear to be” (McRae, Ochsner, Mauss, Gabrieli, & Gross, 2008). These composite manipulations appear to have a number of affective benefits, including lowering physiological and emotional reactivity to distressing images (Schartau et al., 2009), and reducing rumination over negative memories in comparison to “just feel” (Schartau et al., 2009) and no-instruction (Rude et al., 2011) control conditions.

While these findings are encouraging, when several cognitive reappraisal strategies are studied in combination the stand-alone benefits of any one strategy cannot be assessed. This is problematic because to optimize interventions it is critical to understand which of their multiple components account for their efficacy (Kazdin, 2007). To date, there has been only one single-study paper addressing the stand-alone benefits of temporal distancing (Yanagisawa et al., 2011). This study found that participants who wrote about what they would like to do in the distant future immediately prior to playing cyberball, a game designed to elicit feelings of rejection, experienced less intense feelings of rejection than those assigned to write about what they would like to do in the near future.

Although these findings provide promising preliminary evidence that temporal distancing reduces emotional distress, a number of important questions remain. For one, we do not know whether temporal distancing affects responses to real-world stressors encountered outside the laboratory, hence, there is a need to examine its generalizability. Second, we do not know the cognitive mechanism(s) through which temporal distancing reduces distress. Pinpointing mechanisms that underlie effective emotion regulation interventions is critical not only for basic science research and theory but also for translational research, as it informs researchers of which mechanisms should specifically be targeted in the field (Kazdin, 2007). Finally, the implications of temporal distancing for broader well-being remains unexplored – an issue key to gauging the real-world significance of this strategy. The present studies aim to address these issues by 1) examining how temporal distancing affects emotional responses to a variety of real-world stressors 2) testing four potential cognitive mediators of the affective benefits of temporal distancing and 3) exploring the downstream consequences of temporal distancing, and its associated cognitive processes, for broader functioning.

How Might Temporal Distancing Reduce Distress?

Preliminary evidence suggests that temporal distancing helps to down-regulate distress. But how does it have this effect? The present research addresses this question by exploring four plausible mediators of the emotion-regulatory benefits of temporal distancing.

One possibility is that temporal distancing activates the insight that negative events, and our reactions to them, are impermanent in nature. Take the example of a student who is upset by her poor performance on a midterm exam. Following the receipt of her grade, this student may reflect not only on how she perceives her performance at present, but on how she may view it at different future time points. In doing so, she may place this event in a relatively broad future time frame (e.g., mentally traveling to imagine how she'll perceive it 10 years in the future) and/or a relatively narrow one (e.g., mentally traveling to imagine how she'll perceive it later in the semester). Placing this event into a relatively broad time frame may draw her attention to the possibility that her perception of the event, and of its consequences, may change or fade with the passage of time. Focusing on the stressor's changing and impermanent nature may, in turn, help her cope emotionally with the event at present.

The insight that negative events and our reactions to them change and fade with time, and that we can draw upon this knowledge to regulate distress, is reflected in folk sayings like "time heals all wounds." It is also central to the concept of "decentering," a component of mindfulness which refers to the ability to observe thoughts and feelings as transitory events in the mind as opposed to reflections of one's core self or a stable reality (Fresco et al., 2007; Sauer & Baer, 2010). Prior research demonstrates that a decentered perspective can be cultivated through mindfulness-based mediation training in which the individual non-judgmentally observes the moment-to-moment flux of thoughts and feelings in their mind (Erisman & Roemer, 2010; Feldman, Greeson, & Senville, 2010). However, no published research has examined whether adopting a broader temporal perspective on negative events heightens people's awareness of the impermanence of their reactions to them in a similar manner. The current studies not only examine this question, but also look at whether impermanence focus accounts for the predicted link between temporal distancing and reduced distress.

The idea that placing events into a broader, more temporally distant perspective heightens awareness of their transient and changeable aspects is also consistent with CLT. CLT posits that adopting a temporally or otherwise psychologically distant perspective on events leads one to deemphasize their concrete, malleable, and situation-specific features and instead represent events in terms of their abstract and stable aspects (Liberman & Trope, 2008; Trope & Liberman, 2003). People's reactions to stressful life events are often event-specific, malleable, and concrete in nature. For example, many of the feelings (e.g., frustration) and thoughts (e.g., regret over specific studying behaviors) associated with receiving a poor exam score tend to be both temporally bound and situation-specific. Thus adopting a distant future perspective on specific stressors may often heighten one's awareness of the impermanence and relative insignificance, a realization that may function to reduce one's present distress.

Besides increasing impermanence focus, there are a number of other pathways through which temporal distancing could reduce distress. Prior research demonstrates that people tend to view the distant future in both a more schematic and positive light than the near future. People expect their lives, their emotional experiences, and even their personalities to be both less variable (Liberman, Sagristano, & Trope, 2002; Wakslak, Nussbaum, Liberman, & Trope, 2008) and more positive (Heller, Stephan, Kifer, Sedikides, 2011) in the distant versus the near future. For example, when asked to describe a hypothetical good or bad day that might happen to them

one year from now, people describe days that are *more* affectively homogenous (i.e., all good or all bad) than when describing a day that may occur tomorrow (Lieberman et al., 2002). At the same time, people tend to see the distant future through rose-colored glasses, expecting, on the whole, to experience fewer negative and more positive events in the distant as compared to the near future (Heller et al., 2011).

The tendency to see the distant future as both more schematic and brighter may help explain how temporal distancing reduces distress. When asked to contemplate how they will perceive a stressful event in the distant future, people's schemas about their distant future lives are likely to be activated. Since, for most people, these schemas are highly optimistic (Heller et al., 2011; Lench & Bench, 2012; Taylor & Brown, 1988; Weinstein, 1980), their representations of their distant future are likely to be rosy in spite of their present problems. For example, when envisioning the distant future, the student who is distressed about her midterm performance may nonetheless imagine a future in which she is a happy college graduate with a well-paying job. This optimistic vision of her distant future may alleviate her present distress.

In contrast, when reflecting on their near-future lives, people are more likely to consider concrete situational forces that may shape their day-to-day experiences (Heller et al., 2011; Trope & Liberman, 2003; Wakslak et al., 2008). Thus, when people reflect on how they will perceive a stressful event in the near future, they may be relatively more likely to focus on the varied ways in which this stressor could impact their daily routine. For example, when contemplating the near future, the student who failed the midterm may focus on how she will need to stay in on the weekends to study, as well as the concrete negative feelings associated with doing this (e.g., frustration, boredom, anxiety, etc.). Envisioning a stressful event in a concrete manner may also amplify distress because concrete mental simulations are known to evoke stronger emotional reactions than more abstract ones (Taylor & Schneider, 1989). Viewing negative events from a distant-future perspective may, in comparison, reduce distress by drawing people's attention away from the potential concrete impact of the event.

A final explanation for the distress-reducing properties of temporal distancing is that distancing strategies promote emotional avoidance. Avoidance refers to efforts to push away or not fully experience thoughts and feelings that are perceived to be uncomfortable or unacceptable (Foa & Kozak, 1986). While avoidance may successfully reduce momentary distress, it is believed to be an ineffective and even counterproductive strategy in the long run because it prevents full processing of the emotions associated with negative experiences (e.g., Foa & Kozak, 1986; McIsaac & Eich, 2002, 2004). Given prior researchers' suggestion that temporal distancing works by giving rise to a "state of detachment" from one's immediate emotional experiences (Yanagisawa et al., 2011), this possibility merits further exploration.

In sum, the current research tests four potential mediators of the predicted link between temporal distancing and reduced distress: 1) increased impermanence focus 2) increased future idealization 3) decreased focus on the concrete impact of stressors and 4) increased avoidance.

Does Temporal Distancing Predict Broader Functioning?

A second, more exploratory goal of this research was to investigate whether temporal distancing, and the cognitive mechanism(s) responsible for its effects, have any implications for broader psychological functioning. While prior research suggests that temporally distancing from stressors should reduce momentary distress, it is not clear that these short-term effects translate into longer-term benefits.

Previous research demonstrates that cognitive emotion regulation strategies that effectively mitigate momentary distress often also promote broader well-being. For example, use of certain cognitive reappraisal strategies (e.g., positive reappraisal, self-distancing) have been linked to both short-term reductions in negative affect (e.g., Kross, Ayduk, & Mischel, 2005; Shiota & Levenson, 2012) and longer-term psychological health and well-being (e.g., Ayduk & Kross, 2010; Gross & John, 2003; Shiota, 2006). Moreover, previous research suggests that psychological distancing, and the higher-level construals associated with distancing, support self-controlled behavior by enhancing the salience and perceived value of long-term goals (for a review Fujita & Carnevale, 2012). Given these prior findings, it seems plausible that temporal distancing might support broader psychological functioning in addition to reducing momentary distress. On the other hand, it is possible that temporal distancing may be a maladaptive long-term strategy because, by highlighting the temporary nature of negative events, it may promote the belief that one's problems will simply fade with the passage of time. In doing so, temporal distancing may undermine long-term well-being by undercutting people's motivation to engage in active problem-solving behaviors. If this is the case, temporal distancing should predict poorer outcomes over time.

Given the lack of prior research on temporal distancing and broader psychological functioning, and in the absence of strong a priori reasons to favor one possibility over the other, we decided to approach this question in an exploratory manner. For this reason, the present studies simply investigate whether temporal distancing, and the cognitive processes it gives rise to, have *any* implications for longer-term functioning. We took a broad approach to this question, investigating the relationship between these variables and two outcomes linked to college students' functioning — their long-term academic performance (Studies 2 and 3) and their psychological well-being (Study 4).

The Present Research

The present research has three main goals: 1) to determine whether temporal distancing from real-world stressors reduces emotional distress 2) to elucidate the cognitive pathway(s) through which it does so and 3) to explore the relationship between temporal distancing, its associated cognitive processes, and broader functioning. We conducted seven studies to address these questions. Studies 1a and 1b tested our basic premise that adopting a distant-future perspective on stressful life events reduces distress more effectively than a near-future or control perspective. These studies also examined whether any of the four proposed mediators account for this predicted effect. Study 2 addressed the possibility that the Study 1a and 1b findings were due to experimental demand or expectancy effects, helping to rule out these alternatives. Study 3 built upon the prior studies by testing whether their findings apply to a new (academic) domain and to responses to positive as well as negative life events. It also explored the effects of temporal distancing on longer-term academic functioning. In Studies 4-6, we narrowed our focus to a key mechanism that helped to account for the emotion-regulatory benefits of temporal distancing across our first three studies—impermanence focus. Using both correlational and experimental designs, we explored how impermanence focus predicts affective responding to stressors as well as broader academic and psychological functioning.

Studies 1a and 1b

Studies 1a and 1b tested the hypothesis that adopting a distant-future perspective on recently experienced stressors alleviates emotional distress, examining four potential mediators of this hypothesized effect. The purpose and procedures of these two studies was very similar. In both studies, participants reflected on how they would perceive a personally relevant stressor in either the near or the distant future before answering a series of questions about their reactions to this stressor. However, there were a few notable differences in these studies' design. In Study 1a, we explored whether the type of focus people adopt when reflecting on the near vs. distant future alters the effects of temporal distancing on emotional distress. Specifically, we examined whether reflecting on one's potential future *feelings* about a stressor vs. its potential future *implications* moderates the effect of temporal perspective on negative affect. However, our initial analyses demonstrated that focus (feelings vs. implications) did not interact with temporal perspective (near vs. distant) to predict affect in Study 1a. Therefore, to streamline analyses and increase statistical power we collapsed data across our focus manipulation in the reported results. Second, participants in Study 1a but not 1b were screened for inclusion on the basis of having recently experienced a stressful life event they considered to be severe. Third, Study 1b included a control condition in which participants were instructed to focus on how they might feel about their stressor "in the future" without specifying the future time frame they should consider. This control allowed us to test the possibility that the effects of temporal distancing on distress are due to the near-future condition amplifying distress rather than the distant-future one diminishing it. It also allowed for an exploration of whether people naturally adopt a more temporally distant or immersed perspective when reflecting on the future. Despite these differences, due to the largely common purpose and procedures of the studies, we discuss them together below.

Method

Participants

Participants were 82 undergraduate students in Study 1a (67 women, mean age 20.04 years, $SD = 1.52$) and 157 undergraduates in Study 1b (112 women, mean age 20.66 years, $SD = 3.80$), who spoke English as their native language. We only recruited native English speakers in this and all subsequent studies out of concern that second-language learners might have difficulty comprehending the audio-instructions containing the critical temporal perspective manipulation. Participants completed the study either individually or in small groups of 2-3, in partial fulfillment of a course requirement or for payment. Two participants in Study 1a and 16 participants in Study 1b were excluded from the analyses based on a criterion determined prior to data analysis—specifically, hidden page timing in our computer-based survey revealed that they failed to listen to the audio-instructions containing the critical manipulation in full. This exclusion criterion was utilized across all studies containing audio-instructions (i.e., Studies 1a, 1b, 2, 3 and 6). An additional 3 participants in Study 1b were excluded because their data were unusable due to computer problems (e.g., internet service interruptions). This left a total of 80 participants in Study 1a (65 women, mean age = 20.04 years, $SD = 1.53$) and 138 participants in Study 1b (96 women, mean age = 20.50 years, $SD = 2.83$). Exclusions in this experiment and in all subsequent experiments were not significantly related to condition, all χ^2 s < 2.23 , $ps > .20$.

Procedure

Study 1a.

Pre-experiment screening. Participants were screened for inclusion on the basis of having experienced a stressful life event (self-defined) that arose within the prior two weeks, and which they classified as at least moderately severe and distressing at the time of the screening (a 3 or above on a 5-pt scale of both severity and distress). This screening survey contained a number of questions about the nature of participants' stressors as well as some demographic measures. Participants completed this online survey 1 to 11 days before coming into the laboratory, $M = 4.45$ days, $SD = 2.10$.

In Study 1a, and in the majority of our studies, participants were asked to identify a real world stressor that they *perceived* as highly stressful as opposed to reflecting on a uniform stressful event (e.g., the death of a loved one) or exposing participants to a stressful situation in the laboratory (e.g., the receipt of fake failure feedback). We elected to have participants reflect on a self-defined stressor because a large body of research on stress and appraisals suggests that the subjective meaning of objective stressors varies widely from person-to-person, and that stressors' subjective meaning rather their objective nature more tightly predicts individuals' affective and behavioral responses (for a review see Lazarus & Folkman, 1984). However, in Study 3 and 4 we additionally explore whether our effects generalize to a more uniform stressor, specifically, a midterm examination.

Lab-based experiment. Participants completed the study at their own pace, guided by written and audiotaped instructions. All participants were reminded of the stressor they had reported on the screening survey via a written prompt, and then indicated the extent to which it continued to be an ongoing source of distress. They were then randomly assigned to imagine what their life would be like either one week or ten years in the future, envisioning what they "might be doing" and how they "might be spending their time" at this future time point. Participants were then further randomly assigned to focus either on how they might *feel* about the stressor at this future time point (*feelings focus*) or on what *implications*, if any, the stressor might have for their lives at that future time point (*implications focus*). This assignment resulted in a 2 x 2 factorial design with the following four conditions: near-future feelings, near-future implications, distant-future feelings, and distant-future implications. Subsequently, participants completed a series of questionnaires about their perceptions of their stressor, and described in writing the stream of thoughts they experienced during the reflection period of the study (hereafter referred to as their "stream-of-thoughts" essays). They were then debriefed, compensated, and dismissed.

As previously noted, preliminary analyses showed that focus (feelings vs. implications) did not interact with temporal perspective (near vs. distant) to predict negative affect, $F(1, 75) = 1.19$, $p = .28$, so we collapsed across the focus manipulation in the reported results.

Study 1b. The procedure of Study 1b was largely identical to that of Study 1a, with the exception that participants were not screened for inclusion prior to their laboratory session. Instead, at the beginning of their sessions, participants were prompted to identify the source of stress in their lives that was causing them the most distress *at the present moment*. They then answered some basic questions about this stressor, such as how long ago it arose and how much distress it was presently causing them. Subsequently, participants were randomly assigned to either a 1) near-future feelings 2) distant-future feelings or 3) future-control condition. Unlike Study 1a, focus (feelings vs. implications) was not manipulated. Instead, all participants were instructed to focus on their future feelings. Instructions for the near and distant-future feeling

conditions were identical to the feelings-focus conditions in Study 1a. Participants in the future-control condition simply reflected on how they might feel about their stressor “in the future,” with no specific future time-perspective specified. Following the reflection period, participants responded to questions about their perceptions of this stressor and then were debriefed, compensated, and dismissed.

Measures

Studies 1a and 1b included the same basic outcome variables. Many of these variables were measured in an identical manner across studies, with a few exceptions noted below.

Temporal perspective manipulation check. To ensure that participants maintained the assigned temporal perspective, all participants were asked to rate the extent to which their thoughts during the reflection period focused on their near versus distant future on a 7-point scale (1 = *my near future (e.g., my life 1 week from now)*, 4 = *my near and distant future more or less equally*, and 7 = *my distant future (e.g., my life 10 years from now)*), 1a: $M = 3.48$, $SD = 2.34$; 1b: $M = 4.36$, $SD = 2.12$.

Post-manipulation emotions. Folkman and Lazarus’s (1985) measure of anticipatory and outcome-related emotions was used to measure participants’ affective reactions to reflecting on their stressor. In this and all subsequent experiments (i.e., Studies 2, 3, 6 & 7), participants rated how reflecting on their stressor made them feel *at the present moment*. Anticipatory items included both positive (e.g., hopefulness) and negative (e.g., worry) emotions that arise from appraisals of how an event might affect one’s future. Outcome-related items also included both positive (e.g., relief) and negative (e.g., sadness) emotions that arise from evaluations of events that have already occurred. Since participants in the present studies were asked to reflect on a stressor that had already arisen, but that was still an ongoing source of distress, it seemed plausible that they would experience a mix of anticipatory and outcome-related emotions. While Folkman and Lazarus (1985) computed separate indices of anticipatory and outcome-related emotions, we found participants’ scores on these indices to be highly correlated (Study 1a $r = .80$ and Study 1b $r = .81$). Thus, for the sake of simplicity, we averaged the anticipatory and outcome-related emotions to create a single measure of affect. Before averaging, we reverse scored the positive affect items, such that a higher score on this composite indicates greater negative and lesser positive affect. The items included in this measure were: *worried, fearful, anxious, angry, sad, disappointed, guilty¹, disgusted, confident, hopeful, eager, exhilarated, pleased, happy, and relieved*, 1a: $\alpha = .88$, $M = 3.30$, $SD = 0.71$; 1b: $\alpha = .89$, $M = 2.92$, $SD = 0.73$.

Post-manipulation cognitions. In this and all subsequent experiments, participants were asked to make their ratings on the following measures with respect to the content or focus of their thoughts during the reflection period of the experiment, in which they listened to the audio instructions and reflected on their stressor.

Avoidance. Participants responded to the following two statements, which have been used to measure avoidance in previous research (Ayduk & Kross, 2010): “When prompted to think about this stressor, I tried to avoid thinking about it” and “When prompted to think about

this stressor, I tried to suppress (push away) my feelings about it”, 1a: $\alpha = .90$, $M = 3.51$, $SD = 1.73$; 1b: $\alpha = .84$, $M = 3.01$, $SD = 1.50$.

Coded measures of potential mediators (Study 1a only). Two independent judges, blind to experimental condition, coded participants’ stream-of-thoughts essays for statements reflecting three of the proposed mediators of the link between temporal distancing and distress: impermanence, future idealization, and concrete impact. Coders were instructed to code these essays using a scale ranging from 0 (not present at all) to 3 (the main theme of the essay). Details of the coding system and coder reliabilities are described below.

Impermanence statements were defined as those in which the participant explicitly stated that the problem would *not* have a lasting effect on their future feelings (e.g., “I don’t think I’ll be upset anymore in one week”) or life (e.g., “I looked to the future and found that my performance on this exam will be completely irrelevant to my life then”), $ICC = .93$, $M = 0.63$, $SD = 0.92$.

Future idealization statements were operationalized as those in which the participant described an idealized and often highly schematic vision of what their life might be like in the future (e.g., “In 10 years, I can picture myself in a decent-sized house with kids and a husband”), $ICC = .95$, $M = 0.35$, $SD = 0.74$.

Concrete impact statements were those in which the participant described the impact of their stressor on their day-to-day activities (e.g., “I thought about how I’ll have to balance my weekend activities with my homework load”), $ICC = .90$, $M = 0.46$, $SD = 0.74$.

Self-report measures of potential mediators (Study 1b only). In Study 1b, impermanence, future idealization, and concrete impact were measured with multiple-choice statements instead of coded essays. Participants rated their agreement with these statements on a 7-point scale (1 = *strongly disagree* to 7 = *strongly agree*).

Impermanence was measured with the following items: “I focused on how the current consequences of the problem will fade over time”; “I told myself that my feelings about the problem are temporary”; and “I focused on how my perceptions of the problem may change over time”, $\alpha = .73$, $M = 4.33$, $SD = 1.38$.

Future idealization was measured with the following two items: “I imagined the life I ideally want to lead in the future” and “I visualized what I ideally want my life to be like at this future time point”, $\alpha = .78$, $M = 5.17$, $SD = 1.49$.

Concrete impact was measured by the items: “I thought about how this problem will affect my day-to-day life” and “I focused on how this problem will affect my daily routine in the future”, $\alpha = .52$, $M = 4.20$, $SD = 1.42$.

Elapsed time (covariate). The amount of time that elapsed between the time participants’ stressors first arose and the time that they reflected on them in the lab was estimated and controlled for in all analyses. In Study 1a, this estimation was based on the sum of 1) participants’ estimates of the number of days that had elapsed since their stressors first arose on the screening survey and 2) the number of days that had elapsed between filling out the screening survey and coming into the lab. Elapsed time ranged from 4-19 days, $M = 11.55$ days, $SD = 3.83$. In Study 1b, elapsed time was measured with the single item “Approximately how long ago did this problem first arise,” which participants responded to on a 5-point scale (1 = *less than a week ago* to 6 = *more than 1 year ago*), $M = 3.63$, $SD = 1.62$.

In addition to controlling for elapsed time, we also included a number of other covariates in this and subsequent studies. These additional covariates vary from study to study, and are

described in detail in Appendix A. Inclusion vs. exclusion of these covariates did not change the basic patterns of the reported findings. These additional covariates were subsequently dropped from the reported analyses to enhance cross-study standardization of our methods, thus demonstrating cross-study replication more clearly.

Results

Analytic Strategy

Since Studies 1a and 1b addressed the same basic questions utilizing similar methods, we conducted our analyses on their merged data. Conducting the analyses in this manner has the advantages of increasing statistical power and the reliability of our findings, as well as simplifying their reporting. Further justifying this approach, although “study” (1a vs. 1b) had a main effect on some outcome variables, it did not interact with condition to predict any of the outcomes with one exception, as noted in footnote four. We collapsed the data after z-scoring variables that were measured on different scales across the two studies (i.e., impermanence, future idealization, concrete impact, and elapsed time). Table 1 reports descriptive statistics for the combined Study 1a and 1b data. Table 2 reports descriptive statistics for Studies 1a and 1b separately, in their original metric, for comparison purposes.

To address whether the distant-future condition reduced distress more effectively than the other two conditions, we ran a series of between-subject ANCOVAs with condition (3: near-future vs. distant-future vs. future-control) as the predictor, and elapsed time (continuous) as well as study (2: 1a vs. 1b) as covariates. In instances in which the overall effect of condition on a dependent variable was significant, contrast analyses were conducted to determine which conditions significantly differed. Degrees of freedom vary slightly across the reported analyses due to missing values.²

Main Analyses

Manipulation check. As expected, condition had a significant effect on the manipulation check, $F(2, 212) = 116.51, p < .001, \eta^2_p = .52$. Specifically, the distant-future condition reported focusing more on the distant future than the near-future condition ($F(1, 212) = 232.38, p < .001$) or the future-control condition ($F(1, 212) = 27.08, p < .001$). The future-control condition also focused more on the distant future than the near-future condition, $F(1, 212) = 44.36, p < .001$.

Post-manipulation emotions. As predicted, the effect of condition on affect was significant, $F(2, 213) = 13.52, p < .001, \eta^2_p = .11$. Planned contrasts revealed that the distant-future group felt significantly less negative than the near-future ($F(1, 213) = 23.85, p < .001$) and future-control groups ($F(1, 213) = 12.67, p = .001$). The future-control group did not differ significantly from the near-future group, $F(1, 213) = .05, p = .82$.

Post-manipulation cognitions.³ Condition had a significant effect on all four of the proposed mediators of the temporal distancing to affect link—impermanence ($F(2, 213) = 20.43, p < .001, \eta^2_p = .16$), future-idealization ($F(2, 213) = 29.81, p < .001, \eta^2_p = .22$), concrete impact⁴ ($F(2, 213) = 11.69, p < .001, \eta^2_p = .10$), and avoidance ($F(2, 213) = 5.32, p = .006, \eta^2_p = .05$).

Consistent with predictions, the distant-future group focused *more* on their stressors' impermanence and their ideal future than the other two groups (all $F_s > 8.70$, $ps < .005$). They also focused *less* on the concrete impact of the stressor and engaged in *less* avoidance than the near-future or future-control groups (all $F_s > 5.25$, $ps < .05$).

The future-control group reported focusing significantly more on their stressors' impermanence and on their ideal future than the near-future group (both $F_s > 3.90$, $ps < .05$), but did not differ from the near-future group in their focus on their stressors' concrete impact or in their level of avoidance (both $F_s < .65$, $ps > .40$).

Mediational analyses. To examine whether condition differences in any of the four proposed mediators accounted for the relationship between temporal distancing and post-manipulation affect, we used bootstrapping methods to construct 95% confidence intervals based on 5,000 random samples (Preacher & Hayes, 2008), utilizing the SPSS macro "Process" (Hayes, 2013). Since the future-control and near-future conditions differed significantly on some of the proposed mediators of the condition to affect relationship, we ran mediational analyses for the distant-future vs. near-future contrast separately from those for the distant-future vs. future-control contrast.

We first examined mediators of the distant-future versus near-future contrast. Both impermanence, future idealization, and avoidance significantly mediated the relationship between condition and affect when entered individually into the mediational model. Concrete impact did not, as the 95% CI contained the value of zero ($CI = -.05$ to $.03$). When entered into the model simultaneously, impermanence, future idealization, and avoidance continued to mediate this relationship uniquely and significantly, mediated effect for impermanence = $-.06$, $SE = .03$, 95% $CI = -.11$ to $-.02$, mediated effect for future idealization = $-.08$, $SE = .03$, 95% $CI = -.14$ to $-.03$, mediated effect for avoidance = $-.04$, $SE = .02$, 95% $CI = -.09$ to $-.02$.

We then examined the distant-future vs. future-control contrast. Similar to the prior contrast, impermanence, future idealization, and avoidance significantly mediated this relationship when entered individually. When entered simultaneously, all three variables continued to uniquely mediate this relationship, mediated effect for impermanence = $-.06$, $SE = .04$, 95% $CI = -.16$ to $-.01$, mediated effect for future idealization = $-.10$, $SE = .04$, 95% $CI = -.19$ to $-.02$, and mediated effect for avoidance = $-.09$, $SE = .05$, $CI = -.21$ to $-.01$. Again, concrete impact did not significantly mediate this effect (95% $CI = -.17$ to $.01$).

Study 1 Summary and Discussion

The results of Studies 1a and 1b supported the hypothesis that adopting a distant-future perspective on stressful events reduces distress more effectively than a near-future one. The inclusion of the control condition in Study 1b lends additional credence to this hypothesis by helping to rule out that the observed effects are driven solely by the near-future condition amplifying distress rather than the distant-future one diminishing it.

Studies 1a and 1b also helped to clarify the cognitive mechanisms responsible for the distress-reducing effects of temporal distancing. Across these studies, the extent to which participants focused on the impermanent nature of their stressor and their ideal future mediated the link between temporal distancing and reduced distress, while their extent of focus on the stressor's concrete impact did not. Avoidance was also a significant mediator for the contrast of the distant-future to the near-future condition. It is noteworthy, that contrary to prior some

theory (Yanagisawa et al., 2011), temporal distancing *reduced* rather than heightened avoidance, an effect which accounted, in part, for why the distant-future group experienced less distress than the near-future one.

It is also worth noting that the main effect of temporal distance on emotional distress emerged regardless of whether participants reflected on stressors that they considered relatively serious (Study 1a) or daily stressors that were simply bothersome at the time of the study (Study 1b). With the exception of concrete impact, the main effects of temporal distance on the mediators of interest were also consistent irrespective of the manner in which they were measured (i.e., with coded measures from stream-of-thoughts essays vs. self-report measures). This latter finding is important, because although multiple-choice questions simplify data analysis, they may also direct participants' attention towards cognitions the researcher theorizes to be focal, potentially biasing participants' responses in a hypothesis-confirming manner. The results of Study 1a demonstrated that participants spontaneously (i.e., without prompting) reported attending to the focal mediators, and as such suggest that our findings are not an artifact of using multiple-choice measures.

Study 2

Studies 1a and 1b provided converging evidence that temporal distancing from stressors reduces emotional distress. It is possible, however that these effects may have been due in part to experimental demand or to expectancy effects, especially in light of folk sayings such as "time heals it all wounds". We believe that these alternatives are unlikely because our experimental instructions were devoid of emotional content, did not imply that they would have helpful or harmful effects, and simply asked participants to reflect on their stressor from a given time perspective without any reference to the healing power of time. Nonetheless, since self-report measures are subject to demand and expectancy-related biases, we ran Study 2 to address these concerns.

Study 2 provided a more conservative test of our hypotheses by inducing demand and expectancy effects uniformly across experimental conditions. Specifically, participants in *both* the distant and the near-future conditions were explicitly told that the reflection instructions that they would receive had been established, in prior research, to be effective at reducing emotional distress. Studies of placebos demonstrate that the mere expectancy that a procedure will have positive effects is enough to induce substantive changes in both subjective affective experiences and physiological responding (Price, Finnis, & Benedetti, 2008).

The design of Study 2 should make it particularly difficult to find a true effect of experimental condition on negative affect. If condition differences do emerge, it suggests that they are not likely due to mere experimental demand or expectancies, but more likely reflect the content of the manipulation. We anticipated that the distant-future group would report lesser negative affect, despite this design. As in Studies 1a and 1b, we also examined whether any of the proposed cognitive mediators could account for the predicted link between temporal distancing and reduced negative affect.

In Study 2 we also measured and controlled for participants' general (i.e., pre-manipulation) tendency to give socially desirable responses. To the extent that framing both reflection instructions as effective creates demand, then condition differences in negative affect should become more robust once variance accounted for by socially desirable responding is taken into account. We also explored whether these demand effects were stronger in one

condition versus the other by testing the interaction between condition and social desirable responding in predicting our outcomes.

Method

Participants

Participants were 104 undergraduate students (68 women, mean age = 20.51, $SD = 1.99$). The data from 24 participants were excluded based on criteria determined prior to data analysis. Specifically, as in Studies 1a and 1b, hidden-page timing embedded within this survey indicated that 23 participants failed to listen to the audio-instructions containing the critical manipulation in full. Also, because we had less control over the online environment in which Study 2 was performed, we embedded instructional manipulation checks within the larger questionnaire of both this, and all subsequent online studies (i.e., Studies 3-6). One additional participant was excluded because they failed all three of the three instructional manipulation checks embedded within this study. Failure of multiple manipulation checks indicated that the participant was not reading the content of the questions, but rather answering questions carelessly. This left a total of 80 participants (56 women, mean age = 20.56 years, $SD = 2.03$ years).

Procedure

The procedures of Study 2, which was run online, were nearly identical to those of Study 1b. As in Study 1b, participants were first prompted to identify the stressor that was causing them the most distress at present, and then provided some basic information about this stressor. Unlike Study 1b, all participants were then told that they would be instructed to reflect on this stressor in a manner that was designed, and demonstrated in past research, to be helpful for reducing emotional distress. Subsequently, participants were randomly assigned to reflect on their respective stressors from either a near or a distant future perspective using audio instructions identical to those of Study 1b. Finally, participants completed questionnaires concerning their thoughts and feelings that matched those of Study 1b.

Measures

Post-manipulation emotions. As in our first two studies, we used Folkman and Lazarus's (1985) measure to assess stressor-related emotions, $\alpha = .90$, $M = 2.96$, $SD = 0.78$.

Post-manipulation cognitions. Study 2 utilized the same items used in Study 1b to measure *impermanence* ($\alpha = .82$, $M = 4.81$, $SD = 1.58$), *future idealization* ($\alpha = .79$, $M = 5.56$, $SD = 1.36$) and *concrete impact* ($\alpha = .74$, $M = 4.59$, $SD = 1.52$). Avoidance was also measured in a manner identical to the previous studies, ($\alpha = .74$, $M = 3.06$, $SD = 1.58$).

Temporal perspective manipulation check. The same temporal perspective manipulation check used in Studies 1a and 1b was included here, $M = 4.43$, $SD = 2.36$.

Elapsed time (covariate). As in Study 1b, elapsed time was measured with the single item “Approximately how long ago did this problem first arise” (1 = *less than a week ago* to 6 = *more than 1 year ago*), $M = 3.69$, $SD = 1.43$.

Social desirability (covariate). Social desirability was measured with a short 13-item version of the Marlowe-Crowne Social Desirability Scale (Reynolds, 1982). Participants rated their agreement with statements such as “No matter who I'm talking to, I'm always a good listener” on a 2-pt scale (0 = *false* and 1 = *true*). Items were reverse scored as appropriate and then summed, such that a higher score indicates that the participant responded in a more socially desirable but less honest manner, $\alpha = .76$, $M = 5.50$, $SD = 3.08$.

Results

Analytic Strategy

To address whether the distant-future condition reduced negative affect more effectively than the near-future one, and to explore the cognitive pathways through which it might have done so, we ran a series of between-subject ANCOVAs with condition as the main predictor and elapsed time as a covariate. We also examined whether the observed effects of condition on negative affect became more robust when controlling for socially desirable responding, and whether socially desirable responding interacted with condition to moderate any of the observed results. Finally, we tested whether the patterns of mediation observed in Studies 1a and 1b replicated here.

Preliminary Analyses

Preliminary analyses confirmed that there were no significant condition differences in socially desirable responding nor did it moderate any of the key findings, (all F s < 4, p s > .05). Preliminary analyses also confirmed that the distant future condition focused more on the distant-future than the near-future condition, $F(1, 77) = 110.62$, $p < .001$, $\eta^2_p = .59$. See Table 3 for descriptive statistics by condition.

Main Analyses

Post-manipulation emotions. As predicted, the distant-future condition reported less negative affect, albeit marginally less, than the near-future condition, $F(1, 77) = 3.25$, $p = .08$, $\eta^2_p = .04$. This difference became stronger and statistically significant after controlling for socially desirable responding, $F(1, 76) = 4.29$, $p = .04$, $\eta^2_p = .05$.

Post-manipulation cognitions. Consistent with the findings of Studies 1a and 1b, the distant-future condition focused more on their stressors' impermanence ($F(1, 77) = 15.82$, $p < .001$, $\eta^2_p = .17$) and on their ideal future ($F(1, 77) = 17.90$, $p < .001$, $\eta^2_p = .19$) than the near-future condition. Unexpectedly, there were no significant condition differences in participants' focus on the concrete impact of their stressor, $F(1, 77) = 2.27$, $p = .14$, $\eta^2_p = .03$. Nor were there significant differences in avoidance ($F(1, 77) = 0.65$, $p = .42$, $\eta^2_p = .01$). Controlling for socially desirable responding did not alter the significance of any of the results.

Mediational analyses. As in Studies 1a and 1b, we tested for mediation using the macro “Process”. Although there were no condition differences in avoidance or concrete impact, for the sake of cross-study consistency, we tested whether each of the four proposed mediators could account for the link between condition and negative affect. This approach is consistent with current approaches to mediational analyses, which do not rely on statistical significance criteria for each individual path to test for mediation (Hayes, 2013).

Both impermanence and future idealization significantly mediated the relationship between condition and negative affect when entered individually. Neither concrete impact nor avoidance did, as the 95% CI for both variables contained the value of zero. When impermanence and future idealization were entered simultaneously, impermanence remained a significant mediator (mediated effect = $-.26$, $SE = .10$, 95% $CI = -.50$ to $-.11$), whereas the indirect effect of future idealization dropped to non-significance (mediated effect = $-.13$, $SE = .09$, 95% $CI = -.33$ to $.02$).

Study 2 Summary and Discussion

Although all participants in Study 2 were led to believe that the experimental procedures would reduce their distress, participants in the distant-future condition tended to report less negative affect than those in the near-future condition, just as they had in Studies 1a and 1b. This finding suggests that demand effects are unlikely to be the primary cause of our prior results. While the magnitude of this effect was smaller in Study 2, this is to be expected given that we were working against our experimental hypotheses by providing participants in both conditions with positive expectancies. One would expect positive expectancies to have a stronger effect for individuals prone to desirable responding; indeed, our condition differences in negative affect became stronger when controlling for socially desirable responding. This pattern of results suggests that the experimental instructions did induce the intended demand effects, and that condition differences in negative affect would have been more pronounced in the absence of this demand. Taken together, these findings suggest that the effect of temporal distancing on negative affect is unlikely to be a mere artifact of experimental demand or expectancies, and more likely reflects the underlying efficacy of the distant-future manipulation for reducing emotional distress.

Similar to Studies 1a and 1b, condition differences in negative affect were mediated by impermanence focus. Unlike the prior studies, neither future idealization nor avoidance independently mediated this relationship, although as in Studies 1a and 1b, the distant-future group reported focusing more on their ideal future than the near-future group. In Study 3, we look at whether this same general pattern of findings replicates in a new context.

Study 3

Study 3 built on the findings of Studies 1a-2 by examining whether the effects of temporal distancing on emotional reactivity replicate in a new, purely academic domain and apply to responses to positive as well as negative events. Unlike the prior studies, participants in Study 3 all reflected on a single event—their performance on a midterm exam. This design differed from the prior studies in that it allowed us to evaluate the effects of temporal distancing in a different domain of stressors (i.e., academic), rather than a broad range of stressors, as in Study 1a, 1b, and 2. This design also allowed us to explore how temporal distancing affects

people's reactions to perceived positive and negative events, as participants differed in both their exam performance and in their emotional reactions to their performance. We did not expect high exam performers to derive the same emotional benefits from temporally distancing as low performers, as temporal distancing from a positive event might increase distress by heightening awareness of the fleeting nature of the happiness it evokes. We explored this possibility in Study 3 by examining whether high exam scorers in the distant-future condition experienced heightened negative emotion.

In addition to including a control identical to that of Study 1b (i.e., a “future control”), Study 3 also tested whether the effects of temporal distancing held when contrasted with a more conservative control condition. This new control group was asked to reflect on their exam performance in any way that would be helpful to them (i.e., an “own strategy” control). This group allowed us to assess whether temporal distancing has any benefits above and beyond the strategies people naturally draw upon when reflecting on events in their lives. It also helped rule out that a distant-future perspective reduces distress *only* relative to a less distant, but still future-oriented perspective, as participants in the new control condition were not instructed to think about their future. We decided to exclude a near-future condition from Study 3 due to the likelihood, based on our Study 1a, 1b, and 2 results, that this condition would amplify the distress of low exam scorers.

Finally, Study 3 explored the implications of temporal distancing for longer-term academic functioning. We did not assess the effects of temporal distancing on longer-term functioning in the prior studies, as participants in these studies reflected on a wide variety of stressors, complicating an assessment of the quality of their outcomes. Study 3 allowed us to explore this question by testing whether temporal distancing from a midterm-exam score affects participants' performance on their final (end-of-semester) examination.

Method

Participants

Participants were 144 (105 women; mean age = 21.34 years, $SD = 3.54$) students enrolled in two undergraduate classes who participated in this online study in partial fulfillment of a course requirement. The data from 47 participants were excluded based on criteria determined prior to data analysis. Specifically, hidden-page timing embedded within this online survey indicated that 23 participants failed to listen to the audio-instructions containing the critical manipulation in full. Twenty-two additional participants (15% of the sample) incorrectly answered one or more of two instructional manipulation checks, and thus were excluded from the analyses. This exclusion rate is consistent with prior online studies (Oppenheimer, Meyvis, and Davidenko, 2009). An additional one participant was automatically excluded from the analyses because she was missing midterm exam score data, which was one of our main predictors. Finally, one participant whose exam score fell approximately four standard deviations below the mean of her class was excluded from the analyses on an a priori basis. However, the basic pattern of results replicates when her data is included. These screening procedures resulted in a final sample of 97 participants (71 women, mean age = 21.33 years, $SD = 3.92$).

Procedure

Participants took this online survey 1 to 15 days after receiving their midterm exam score. They first provided some basic background information about their exam performance and their feelings about it. They were then randomly assigned to one of three conditions: 1) distant-future 2) future-control or 3) own-strategy control. Audio instructions for the distant-future and the future-control conditions were virtually identical to those of Study 1b, except that the word “exam performance” replaced the word “stressor.” The own-strategy control condition was asked to reflect on their performance in any way that they found helpful. Following the reflection period, participants completed questionnaires concerning their thoughts and feelings about their exam performance.

Measures

Pre-manipulation measures.

Self-reported midterm score. Participants indicated the percentage of points (out of 100) that they earned on their midterm exam, $M = 86.20$, $SD = 9.33$. At the end of the survey, they were asked for their permission to verify these self-reports with their professor. Eighty-four students (87% of the sample) consented. Among this subsample, the correlation between self-reported and actual exam scores was .97, allowing for reasonable confidence in participants’ self-report accuracy. Prior to analysis, participants’ exam scores were first z-scored with respect to their class means and then z-scored again after merging the data from the classes, such that exam scores were standardized both with respect to the class from which participants were drawn and with respect to the other participants within the sample. The conditions did not significantly differ on their midterm exam scores, $F(2, 94) = .26$, $p = .77$.

Elapsed time (covariate). The number of days that had elapsed between the time that participants first received their midterm score and the time that they reflected on these scores in the lab was estimated and controlled for in all analyses. This estimation was based on the number of days that had elapsed between when professors first released midterm scores to their students and the date that each participant completed this online experiment. Elapsed time ranged from 1-15 days, $M = 4.64$ days, $SD = 3.83$.

Post-manipulation measures.

Post-manipulation emotions. Folkman and Lazarus’s (1985) measure was used to assess participants’ post-manipulation emotional reactions to their exam performance. It was scored in a manner identical to the prior studies, $\alpha = .91$, $M = 2.57$, $SD = 0.75$.

Post-manipulation cognitions. Participants’ focus on the *impermanence* and *concrete impact* of their exam performance, their *future idealization*, and their level of *avoidance* was measured in a manner virtually identical to Studies 1b and 2, except that the words “exam performance” replaced the word “problem” where relevant. The reliabilities and descriptive statistics for each of the four scales were as follows: $\alpha = .85$, $M = 4.34$, $SD = 1.51$; $\alpha = .75$, $M = 3.60$, $SD = 1.67$; $\alpha = .95$, $M = 4.25$, $SD = 1.98$; and $\alpha = .75$, $M = 2.25$, $SD = 1.19$, respectively.

Final exam performance. To examine whether our manipulation had any lasting impact on academic performance, we asked participants for their consent to obtain their final exam score in the class for which they completed this experiment. Eighty-three (86%) of participants gave their consent, and among these participants, the average final exam score was 85.10 ($SD = 11.09$).

Temporal perspective manipulation check. The same manipulation check used in the prior studies was used here, $M = 3.96$, $SD = 2.17$.

Results

Analytic Strategy

We conducted a series of ANCOVAs to address whether temporally distancing from a midterm score affects emotional reactivity and the pathways through which it might have these effects. Since we were primarily interested in the contrast of the distant-future condition to the two control conditions, we directly examined how these two contrasts, and the interactions between these contrasts and midterm scores, predicted our outcomes. Toward this end, six predictors were entered into each ANCOVA: a) participants' z-scored midterm exam scores b) the contrast of the distant-future condition to the future-control condition (contrast 1) c) the contrast of the distant-future condition to the own-strategy control condition (contrast 2) d) the interaction between contrast 1 and midterm scores e) the interaction between contrast 2 and midterm scores and f) elapsed time (as a covariate).

Preliminary Analyses

Preliminary analyses confirmed that the distant-future condition focused on their distant future to a significantly greater extent than either the future-control ($F(1, 89) = 32.55$, $p < .001$, $\eta^2_p = .27$) or own-strategy control condition ($F(1, 89) = 47.77$, $p < .001$, $\eta^2_p = .35$). See Table 4 for descriptive statistics by condition. Degrees of freedom vary slightly across the reported analyses due to missing values.

Main Analyses

Post-manipulation affect. As would be expected, participants with lower midterm scores felt significantly more negative than their higher scoring counterparts, $F(1, 90) = 38.67$, $p < .001$, $\eta^2_p = .30$. More importantly, the distant-future group reported significantly less negative affect than either the future-control ($F(1, 90) = 6.35$, $p = .01$, $\eta^2_p = .07$) or the own-strategy control condition ($F(1, 90) = 10.04$, $p < .002$, $\eta^2_p = .10$). As predicted, this main effect was moderated by midterm score for the distant-future vs. own-strategy contrast, $F(1, 90) = 8.54$, $p = .004$, $\eta^2_p = .09$. The predicted interaction was also trending for the distant-future vs. future-control contrast, $F(1, 90) = 2.57$, $p = .11$, $\eta^2_p = .03$.

To explore these interactions, we tested the simple effects of condition on affect at one standard deviation above and below the mean midterm score. This analysis indicated that participants in the distant-future condition who received *low* midterm scores experienced less negative affect than low scorers in either of the control conditions (both $ts > 2.85$, $ps < .01$). However, these condition differences did not emerge for high midterm scorers, (both $ts < .70$, $ps > .49$). See Figure 1 for a visual representation of the results.

Post-manipulation cognitions. Similar to the prior studies, the distant-future condition reported greater impermanence focus than the future-control ($F(1, 90) = 10.05$, $p < .002$, $\eta^2_p = .10$) or own-strategy control conditions ($F(1, 90) = 17.51$, $p < .001$, $\eta^2_p = .16$). They also

focused significantly more on their ideal future than the future-control ($F(1, 89) = 41.98, p < .001, \eta^2_p = .32$) or own-strategy control conditions ($F(1, 89) = 41.47, p < .001, \eta^2_p = .32$). As in Study 2, there were no significant condition differences in participants' focus on the concrete impact of their midterm performance or in avoidance. Condition also did not interact with midterm score to predict any of these variables (all F s $< 2.70, p > .10$).

Final exam performance. Condition had no significant main or interactive effects on final exam scores, all F s $< 2.50, ps > .11$. As expected, participants' midterm exam scores positively predicted their final exam scores, $F(1, 76) = 10.28, p = .002, \eta^2_p = .12$.

Mediational and moderated mediational analyses. A central question is whether the condition X midterm interaction predicting affect was mediated by any of the post-manipulation cognitions. In addressing this question, we report the patterns of mediation for the contrast of the distant-future condition to each of the control conditions separately.

Distant future vs. future-control condition. We first tested whether the moderated effect of condition on affect was mediated by impermanence focus. To test this, we utilized the SPSS macro "Process" (Hayes, 2013), which allows for a probing of the significance of conditional indirect effects at different values of a moderator variable utilizing bootstrapping methods. It seemed reasonable to expect that participants with low midterm scores would experience reduced distress to the extent that they focused on the impermanence of their performance. However, impermanence focus seemed unlikely to reduce the distress of high performers, and might instead heighten it. For this reason, we modeled an impermanence X midterm score interaction in the b-path (the indirect path from impermanence focus to affect) in addition to including the observed condition X midterm score interaction to predict affect in the c-path (the direct path from condition to affect). To do this, we selected Process Model 15 (see Hayes, 2013), which allowed us to model both interactions simultaneously. As in prior studies, we constructed 95% CIs based on 5,000 random samples.

Utilizing this model, we found the cross-product term between impermanence and midterm score predicting affect to be significant, $B = .19, t(56) = 3.38, p = .001$. To explore this interaction, we examined the conditional indirect effect of impermanence on affect at three values of midterm exam score: the mean, and 1 standard deviation above and below the mean. Consistent with expectations, participants with low midterm scores (1 SD below the mean), felt less negative to the extent that they focused on the impermanence of their performance, mediated effect = $-.25, SE = .13, 95\% CI = -.60$ to $-.04$. In contrast, high performers experienced *greater* negative affect to the extent that they adopted an impermanence focus, mediated effect = $.14, SE = .10, 95\% CI = .01$ to $.42$. This indirect effect was not significant at the mean level of midterm score, mediated effect = $-.05, SE = .06, 95\% CI = -.21$ to $.04$.

We also tested whether the moderated effects of condition on affect was mediated by participants' degree of focus on their ideal future. There was no theoretical reason to believe that the effect of future idealization on affect should be moderated by participants' midterm scores. Instead, envisioning one's future life in an ideal manner should increase positive and decrease negative affect irrespective of exam performance. Therefore, we tested this indirect effect with Process Model 5 (Hayes, 2013), which allowed us to assess mediated moderation, or whether the condition X midterm score interaction predicting affect was mediated by the extent to which participants focused on their ideal future. However, the indirect effect of future idealization was not significant, mediated effect = $-.11, SE = .15, 95\% CI = -.46$ to $.14$.

Finally, although condition did not significantly affect avoidance or focus on the concrete impact of the midterm, for the sake of cross-study consistency, we tested whether either of these two proposed mediators could account for the moderated effect of condition on affect. However, neither avoidance nor concrete impact significantly mediated the moderated link between condition and affect (all 95% CIs contained the value of zero when using both Process Models 15 and 5).

Distant-future vs. own-strategy control condition. Analyses identical to those above were run for the contrast of the distant-future condition to the own-strategy control condition. However, none of the four proposed mediators significantly mediated the condition X midterm score interaction predicting affect (all 95% CIs contain the value of zero).

Study 3 Summary and Discussion

In Study 3, low exam scorers in the distant-future condition experienced significantly less negative affect than low scorers in either of the two control conditions. The finding that the distant-future condition reduced negative affect to a greater extent than the own-strategy control suggests that, on average, temporal distancing may regulate distress more effectively than the strategies people naturally draw upon when stressed. In contrast, participants who temporally distanced from *high* midterm scores did not feel better than control participants. Instead, by heightening impermanence focus, temporal distancing appeared to have led to a more negative profile of emotional responding for high scorers.

Similar to Study 2, although the distant-future group focused more on both the impermanence of their stressor and their ideal future, impermanence was the sole significant mediator of condition differences in negative affect for the distant-future vs. future-control contrast. While no clear mediators emerged for the distant-future vs. own-strategy control contrast, this limitation notwithstanding, the results of Studies 1-3 point to impermanence focus as a key mechanism underlying the distress-reducing properties of temporal distancing.

Finally, temporal distancing appeared to have no effect on academic functioning, as assessed by final exam scores. It is possible, however, that this null effect may simply be due to the weakness of our experimental manipulation, a possibility that we explore in Study 4.

Studies 4-6

Taken together, Studies 1-3 provided converging evidence that adopting a distant-future perspective on stressful events alleviates emotional distress. They also highlighted impermanence focus as an important mechanism underlying this effect. In Studies 4-6, we turned our attention towards better understanding this mechanism. While our first four studies suggest that experimentally-induced impermanence focus reduced momentary distress, it remains unclear whether impermanence focus operates in a similar manner naturalistically, and whether it influences longer-term functioning. We addressed these questions in Studies 4 and 5 by investigating how naturally arising individual differences in impermanence focus relate to longer-term academic (Study 4) and psychological (Study 5) functioning in addition to predicting reduced momentary distress. Finally, in Study 6 we manipulated impermanence focus to examine whether it predicts affective reactions to stressors in a manner similar to temporal distancing.

Study 4

Study 4 mirrored the design of Study 3, but built upon it by examining whether naturally arising individual differences in impermanence focus predicted students' emotional reactions to a midterm exam in a manner similar to experimentally-manipulated temporal distancing. As in Study 3, we expected impermanence focus to negatively predict emotional distress for low but not high exam scorers. We were less certain whether impermanence focus would predict final exam scores. It did not in Study 3, but this could have simply been due to the weakness of our manipulation. Study 4 was better suited to address this question, since existing individual differences in impermanence focus are likely to be more robust and lasting than experimentally induced ones. If focusing on the impermanence of a negative exam score interferes with academic motivation, impermanence focus should negatively predict the final exam grades of students with low midterm scores.

Method

Participants

Participants were 142 students (101 women, mean age = 21.25 years, $SD = 2.25$) in three undergraduate psychology classes who participated in partial fulfillment of a course requirement. The data from 41 participants were excluded based on criteria determined prior to data analysis. As in all the online studies, participants' data was excluded if they failed two or more of the three instructional manipulation checks embedded within this larger questionnaire. Given the length of the Study 4 survey (see Appendix A for additional measures included in Study 4), we incorporated one additional exclusion criterion to ensure participants were not rushing through the survey or failing to complete it in a reasonable amount of time. Specifically, participants' data was excluded if they took less than 15 minutes or more than 90 minutes to complete the survey. These lower and upper caps were put in place based on pilot testing of the survey, in which pilot participants were asked to take the survey as quickly as possible. Pilot participants took approximately 20 minutes to take the entire survey when taking it as quickly as possible, and thus less than 15 minutes was judged improbably fast for participants to be able to accurately read and answer the questionnaires. When pilot participants were asked to take the survey at their natural speed, it took them approximately 30 minutes to finish. Thus 90 minutes was judged to be too long for the participant to spend solely on the survey without having left and come back or having been multitasking. The data of thirty-five participants were excluded based on this timing criterion and an additional four participants were excluded for failing more than one of three manipulation checks. Two additional participants could not be included in the analyses because they were missing midterm exam score data, which was one of our main predictors. This left 101 participants in the final analysis (73 women; mean age = 21.40 years, $SD = 2.58$).

Procedure

Participants took this online survey 1 to 15 days after receiving their midterm exam score. First, they completed the baseline affect measure as well as some individual difference measures (e.g., neuroticism, etc.). Then they provided some basic information about their

midterm exam performance (e.g., their midterm score) before being prompted to reflect on their current thoughts and feelings about their performance for one minute. Subsequently, participants completed questionnaires concerning their thoughts and feelings about their midterm performance, including the impermanence focus measures.

Measures

Self-reported midterm score. Participants indicated the percentage of points they earned (out of 100) on their midterm exam ($M = 82.61$, $SD = 11.61$). At the end of the survey, participants were asked for their permission to contact their professor to verify these self-reports. Eighty-five (about 84%) students consented, and among this subsample the correlation between self-reported and actual grades was .94, allowing for reasonable confidence in participants' self-report accuracy.

Post-reflection emotions. Folkman and Lazarus's (1985) measure was used to assess participants' affective reaction to their exam performance. Participants made their ratings with respect to how they felt when they reflected on their exam performance within the context of this study. This measure was scored in an identical fashion to previous studies, $\alpha = .94$, $M = 3.16$, $SD = 0.96$.

Impermanence. The extent to which participants focused on the impermanence of their reactions to their exam score in the days following their receipt was measured with the same items as Study 3, $\alpha = .83$, $M = 3.68$, $SD = 1.05$.

Final exam performance. We asked participants for their post-experiment consent to obtain their final exam score in the class for which they completed the survey. Fifty (49.5% percent)⁵ of participants consented, and among these participants the average final score was 86.97, $SD = 13.59$.

Elapsed time (covariate). Elapsed time was measured in a manner identical to that of Study 3 and ranged from 1-15 days, $M = 5.50$ days, $SD = 3.67$.

Results

Analytic Strategy

A series of multiple regression analyses were conducted to test whether impermanence focus moderated the relationship between midterm exam performance and our outcome variables. Specifically, we predicted these outcomes from 1) midterm scores 2) impermanence scores and 3) the interaction between these two predictors. These three predictors were entered into the regression analyses in a single step. Predictors were standardized (i.e., z-scored) and interactions were computed from these standardized scores. One standard deviation above and below the mean on midterm scores was used to represent high and low values when testing simple effects. The amount of time that had elapsed since participants received their exam score was controlled for in the reported analyses.⁶

Main Analyses

Post-reflection emotions. As expected, there was a main effect of midterm score on post-reflection affect, such that high scores predicted lesser negative affect ($B = -.57, t(96) = -6.79, p < .001$). However, this main effect was qualified by the predicted midterm score X impermanence interaction ($B = .27, t(96) = 2.42, p = .017$). This interaction was asymmetrical, such that high impermanence focus buffered participants with poor grades (those 1 SD below the mean) from heightened negativity, $t(96) = -2.53, p = .013$, but did not significantly influence the affect of those with good scores (1 SD above the mean), $t(96) = 1.24, p = .22$. See Figure 2 for a representation of this interaction.

Final exam performance. Neither impermanence nor the interaction between midterm score and impermanence predicted final exam scores, both $ts < 1.00, p > .32$. As expected, midterm scores were a significant positive predictor of final exam scores, $B = 6.40, t(45) = 3.76, p < .001$.

Study 4 Summary and Discussion

Study 4 demonstrated that individual differences in impermanence focus—in this case, in regard to poor midterm scores—predicted reduced emotional reactivity in a manner similar to experimentally inducing a temporally distant perspective. This finding was expected, given that impermanence focus was a central pathway through which temporal distancing reduced distress in Studies 1-3.

As in Study 3, impermanence focus did not predict longer-term academic outcomes. While these analyses were exploratory in nature, the lack of relationship between impermanence focus and final exam scores across studies calls into question the idea that focusing on the impermanence of negative events impedes optimal functioning by decreasing motivation to improve future outcomes.

Study 5

The prior studies provided converging evidence that temporal distancing, and more proximally, impermanence focus, reduce distress. However, these studies only examined the relationship between impermanence focus and *momentary* distress. It remains unclear whether impermanence focus also relates to broader well-being. To address this question, Study 5 examined the relationship between participants' focus on the impermanence of a significant stressful event, their reactions to this event, and their broader psychological functioning. We expected that impermanence focus would positively predict broader psychological well-being in addition to negatively predicting emotional reactivity to these stressors.

Method

Participants

Participants were 82 students (59 women, mean age = 20.68 years, $SD = 2.23$) who spoke English as their native language. The data from 8 participants was excluded based on a criterion determined prior to data analysis, specifically because they failed two or more of three instructional manipulation checks embedded within the larger online questionnaire. Excluding

participants who failed these checks left a total of 74 participants (54 women; mean age = 20.78 years, $SD = 2.31$).

Procedure

Participants were first prompted to identify and describe in writing the most significant source of stress in their lives over the past six months. They then answered a variety of questions about their reactions to this stressor, including the extent to which they had focused on its impermanence. Subsequently, they completed the measures of psychological well-being, described below.

Measures

Measures related to perceptions of the recent stressor.

Impermanence focus. Participants' focus on the impermanent nature of their stressor was measured with the same three items as in prior studies. Participants responded to these items with respect to their thoughts about their stressor since it first arose, $\alpha = .84$, $M = 4.64$, $SD = 1.50$.

Emotional reliving of the stressor. Participants' emotional reliving of their stressor during the study was measured with the following two items, used in prior research (Ayduk & Kross, 2010): "As I think about this event now, my emotions and physical reactions to it are still intense" and "As I reflect on this event, I find myself re-experiencing the emotions I felt when they were most intense." Participants made their ratings with respect to how they felt about their stressor in the present moment on a 7-pt (*strongly disagree* to *strongly agree*) scale, $\alpha = .78$, $M = 4.18$, $SD = 1.42$.

Perceived present impact of the stressor. The following two questions measured the extent to which participants viewed their event as having a significant impact on their lives: "To what extent has this event affected your day-to-day life since it occurred?"; "How much distress is this event causing you now, regardless of when it occurred?" Participants' responses to these items on a 5-pt scale (1 = *not at all* to 5 = *a great deal*) were averaged, $\alpha = .78$, $M = 2.95$, $SD = 0.96$.

Predicted future impact of the stressor. The extent to which participants believed that their stressor would continue to affect their future was measured with the question: "To what extent do you think this event will continue to affect your life in the future?" (1 = *very little or not at all* to 5 = *a great deal*), $M = 2.84$, $SD = 1.12$.

Broader measures of psychological functioning. With the exception of the short Beck Depression Inventory (short BDI), all measures below were modified such that participants responded according to how they had been feeling *over the preceding month*. These modifications were made based on the assumption that recent stressful events would affect participants' recent psychological well-being more strongly than their general (non-time-specific) well-being. For the short BDI, the original instructions were retained, such that participants reported on their depressive symptoms over the prior week.

Depression. A short, 13-item version of the Beck Depression Inventory (Beck & Beck, 1972) was used to assess depressive symptoms (e.g., feelings of hopelessness). Items on this 4-

point scale were summed, such that a higher score indicates higher levels of depressive symptoms, $\alpha = .88$, $M = 5.79$, $SD = 5.54$.

Worry. A short 3-item version of the Penn State Worry Questionnaire (short PSWQ) (Berle et al., 2011) was used to measure the tendency to worry. Participants' responses on a 5-point scale (1 = *not at all typical* to 5 = *very typical*) were reversed when appropriate and then averaged, $\alpha = .85$, $M = 3.22$, $SD = 1.05$.

Satisfaction with life. Global life satisfaction was measured with the Satisfaction with Life (SWL) Scale (Diener, Emmons, Larsen, & Griffin, 1985). Participants' responses to five statements (e.g., "The conditions of my life are excellent") on a 7-pt scale (1 = *strongly disagree* to 7 = *strongly agree*) were summed to yield a single index of life satisfaction, $\alpha = .89$, $M = 22.84$, $SD = 6.96$.

Affect balance. The degree to which participants experienced positive and negative affect in their day-to-day life was measured with the Scale of Positive and Negative Experiences (SPANE) (Diener et al., 2009). Participants rated the extent to which they felt positive (e.g., happy) and negative (e.g., unpleasant) over the preceding month on a 5-pt (1 = *very rarely or never* to 5 = *very often or always*) scale. Following Diener et al., (2009) negative and positive affect ratings were separately summed, and then negative affect scores were subtracted from positive affect scores to yield a single measure of affect balance, α of positive affect = .93; α of negative affect = .89, and $M = 5.01$, $SD = 8.11$ for affect balance.

Data reduction. Participants' scores on the four measures of well-being (i.e., depression, worry, satisfaction with life, and affect balance) were highly correlated and when factor analyzed the scree plot was consistent with a one-factor solution (variance explained by first and only factor = 71.28%). Thus, after reverse scoring the short BDI and PSWQ and z-scoring all variables, these variables were averaged to yield a composite measure of well-being, such that a higher score indicates greater well-being, $\alpha = .86$.

Participants' scores on the three measures of their perceptions of their stressful event (i.e., emotional reliving, perceived present impact, and predicted future impact) were also highly correlated, and when factor analyzed loaded on a single factor (variance explained by first and only factor = 70.90%). Following the procedures for the well-being measures, these variables were averaged to yield a composite measure of the perceived impact of the stressor, such that a higher score indicated a greater perceived impact, $\alpha = .77$.

Elapsed time (covariate). Participants indicated the amount of time that had elapsed since their stressful event first arose on a 6-pt scale, where 1 = *1-2 weeks ago* and 6 = *more than six months ago*, $M = 3.49$, $SD = 1.64$.

Results

Analytic Strategy

Both zero-order and partial correlations (controlling for elapsed time) were calculated to examine the relationship between impermanence focus, perceptions of the stressors, and recent psychological well-being.

Main Analyses

As predicted, participants who focused more on their stressors' impermanence perceived their stressor as having less of an impact on them ($r = -.30$). Impermanence focus was also significantly positively associated with well-being ($r = .26$). Table 5 indicates the zero-order and partial correlations of temporal distancing to both the composite impact and well-being measures, as well as to each of the individual measures contained within them.

Study 5 Summary and Discussion

The results of Study 5 converged with our prior finding that impermanence focus predicts reduced emotional distress. They also expand upon the previous studies by demonstrating that impermanence focus is associated with broader psychological well-being.

While the results of Studies 4 and 5 support the theory that impermanence focus plays an important role in emotion regulation, they share a common shortcoming. In both studies, impermanence focus was measured but not manipulated, leaving it unclear whether impermanence focus causally affects emotional reactivity to stressors in a similar manner to temporal distancing. It is possible that the strength of participants' emotional reactions to their stressful life events in Studies 4 and 5 affected the extent to which they were able to focus on their impermanence—that is, that the causal arrow goes from emotional reactivity to impermanence focus rather than vice versa. Nonetheless, we theorized that impermanence focus should be causally linked to reduced emotional reactivity to stressors. We tested this hypothesis in Study 6 by manipulating impermanence focus to determine whether it plays a causal role in decreasing emotional reactivity. Experiments in which proposed mechanism(s) are manipulated and found to affect outcomes in a similar manner to the original manipulation of interest (in our case temporal distancing) strengthen the case that these mechanism(s) play a causal role in accounting for their effects (Bullock, Green, & Ha, 2010; Kazdin, 2007).

In the present study, we expected that adopting an impermanence focus on stressful events would decrease emotional reactivity to these events in a manner parallel to temporal distancing, and would do so more effectively than a permanence focus *or* the strategies people naturally draw upon when reflecting on stressors. We also expected that our impermanence manipulation would affect participants' cognitions about the permanence of their reactions to their stressors without affecting any of the other cognitions of interest (i.e., future idealization, concrete impact, or avoidance cognitions). To explore whether the impermanence manipulation affected the temporal perspective participants adopted, we also included the temporal perspective manipulation check in Study 6.

Study 6

Method

Participants

Participants were 143 undergraduate students (102 women, mean age = 21.05, $SD = 2.71$). The data from 24 participants were excluded based on a criteria determined prior to data analysis. Twelve participants were excluded from the analyses because hidden page timing revealed that they failed to listen to the audio-instructions containing the critical study manipulation in full. An additional 11 participants were excluded because they failed two or more of the three instructional manipulation checks. One additional participant was

automatically excluded from the analyses because she failed to report when her stressor first arose, which was a covariate in all of the analyses. This left a total of 119 participants (82 women, mean age = 21.16 years, $SD = 2.86$ years).

Procedure

The procedures of Study 6 were similar to those of Study 1b. As in Study 1b, participants were first prompted to identify the stressor that was causing them the most distress at present, and then provided some basic information about this stressor. Subsequently, they were randomly assigned to either a 1) permanence 2) impermanence or 3) own-strategy control condition. The instructions for the own-strategy control condition were identical to those of Study 3 (i.e., participants reflected on their stressors in any way that they found helpful). Participants in the impermanence and permanence groups were respectively told:

Now we would like you to focus on the problem you just identified. Although some aspects of this experience may remain the same (change), others are likely to change (remain the same). Consider those elements of this experience that may change with (endure over) time. Reflect on how some of your thoughts and feelings may be temporary (linger). Consider how some of the current consequences of this experience may fade or may not be relevant to your future life (persist and have a lasting impact on you). Close your eyes and take the next minute to reflect on the aspects of your problem that may be temporary (endure), and that may no longer (continue to) affect you in the future.

After reflecting on their stressors from their assigned perspective, participants completed questionnaires concerning their thoughts and feelings about their stressor, described below.

Measures

Post-manipulation emotions. As in our prior studies, we used Folkman and Lazarus's (1985) measure to assess stressor-related emotions, $\alpha = .86$, $M = 3.23$, $SD = 0.67$.

Post-manipulation cognitions. Study 6 utilized the same items used in Studies 1b and 2 to measure *impermanence* ($\alpha = .84$, $M = 4.24$, $SD = 1.45$), *future idealization* ($\alpha = .82$, $M = 4.85$, $SD = 1.53$) and *concrete impact* ($\alpha = .74$, $M = 4.29$, $SD = 1.47$). Avoidance was also measured in a manner identical to the previous studies ($\alpha = .71$, $M = 3.87$, $SD = 1.47$).

Temporal perspective manipulation check. The same temporal perspective manipulation check used in prior studies was included here, $M = 4.02$, $SD = 1.76$.

Elapsed time (covariate). As in Study 1b and 2, elapsed time was measured with the single item "Approximately how long ago did this problem first arise" (1 = *less than a week ago* to 6 = *more than 1 year ago*), $M = 4.06$, $SD = 1.72$.

Results

Analytic Strategy

To address whether the impermanence condition reduced distress more effectively than the other two conditions, we ran a series of between-subject ANCOVAs with condition as the predictor and elapsed time as a covariate. In instances in which the overall effect of condition on an outcome variable was significant, contrast analyses were conducted to determine which conditions significantly differed.

Main Analyses

Post-manipulation emotions. As predicted, the effect of condition on affect was significant, $F(2, 115) = 6.97, p = .001, \eta^2_p = .11$. Planned contrasts revealed that the impermanence group felt significantly less negative than the permanence ($F(1, 115) = 13.27, p < .001$) or the own-strategy control group ($F(1, 115) = 6.30, p = .013$). The own-strategy control group did not differ significantly from the permanence group, $F(1, 115) = 1.24, p = .27$. See Table 6 for descriptive statistics.

Post-manipulation cognitions. As expected, condition had a significant effect on perceptions of impermanence, $F(2, 115) = 5.80, p = .004, \eta^2_p = .09$. Planned contrasts demonstrated that the impermanence group focused more on the impermanence of their stressor than the permanence group ($F(1, 115) = 7.93, p = .006$) or the own-strategy control group ($F(1, 115) = 9.35, p = .003$). The own-strategy control group did not differ significantly from the permanence group in impermanence focus, $F(1, 115) = .06, p = .80$. Condition did not significantly affect concrete impact ($F(2, 115) = 1.17, p = .31, \eta^2_p = .02$), avoidance ($F(2, 115) = .81, p = .45, \eta^2_p = .01$), or the temporal perspective participants adopted, ($F(2, 115) = 2.03, p = .14, \eta^2_p = .03$). Condition also did not significantly impact future idealization ($F(2, 115) = 2.54, p = .08, \eta^2_p = .04$), although this effect was trending towards significance. Closer examination of this trend revealed that participants in the own-strategy control group reported focusing marginally more on their ideal future life than those in the permanence group ($F(1, 115) = 4.57, p = .04$) whereas the impermanence group did not significantly differ from either of the other two groups (both F s < 2.90 p s $> .09$).

Study 6 Summary and Discussion

Study 6 provided further support for the hypothesis that impermanence focus plays a causal role in reducing emotional distress. In doing so, it strengthened the evidence that temporal distancing aids emotion regulation by heightening impermanence focus. Interestingly, adopting an impermanence focus appears to reduce distress more effectively than the strategies people naturally employ when reflecting on stressful life events. These findings suggest that encouraging people to focus on the temporary nature of their reactions to stressors, whether via temporal distancing or through other pathways, facilitates the down-regulation of negative affect.

Part 2: Boundary Conditions of the Buffering Effects of Temporal Distancing

The findings presented in Part 1 of this dissertation support the hypothesis that adopting a distant-future perspective on stressful events tends to alleviate emotional distress more effectively than adopting either a near-future perspective, or a variety of control perspectives.

However, a close examination of participants' stream-of-thoughts essays in Study 1a provides anecdotal evidence for substantial individual differences in this general pattern. Take the following example from two participants, each of whom described their stream-of-thoughts as they reflected on a class exam from a distant-future perspective.

Participant 1: *This is just one test out of the many tests I'll continue to take in my life. It will be completely irrelevant in the grand scheme of things. I'm worrying about this now but I probably won't even remember it 10 years from now. I always worry about tests then I forget about them later on.*

Participant 2: *I thought if I didn't do well, that I would not be able to graduate and declare my major. That in turn would prolong my college career. Not passing a class that I really need to graduate is right now a main priority. If I am not able to graduate, I feel as if that my future hangs in the balance. My college degree is the stepping stone in which I am to build my future upon.*

These sharply divergent responses to the same prompt suggest that there may be features of stressful situations and/or individuals that constrain the emotion-regulatory benefits of temporal distancing. But what exactly are these features and how might they help to explain these participants' discrepant reactions? That is, under what conditions will adopting a distant-future perspective on stressors reduce versus amplify distress? I explored this question in Part 2 of my dissertation. My goals in identifying these conditions were to a) better understand the basic relationship between temporal distancing and emotional responding to stress and b) provide practical advice about when temporal distancing from stressors is most likely to be an effective emotion-regulation strategy.

It seems unlikely that there exists only one important moderator of the relationship between temporal distancing and emotional distress. Even in the example above, there are many factors that could account for the participants' differing reactions. It is possible, for example, that Participant 2 has a history of recurring difficulties with exams, that he tends to be chronically higher in worry, or that his exam, but not Participant 1's, is important for his major. Given these varied plausible alternatives, what is the best place to begin the search for potential moderators?

One sensible approach is to focus on *why* temporal distancing reduces distress, and consider whether there are circumstances under which the mechanism(s) that account for its distress-reducing effects are less operative. Across our prior studies, temporal distancing reduced distress, at least in part, by heightening people's awareness of the impermanent aspects of their stressors. This pattern is manifested by Participant 1, who reflects on how she "probably won't even remember (her test) 10 years from now". However, there may be circumstances under which temporal distancing will have the opposite effect—leading people to instead focus on enduring aspects of their stressors. This possibility is reflected by Participant 2, who contemplates the potential chain of future consequences that may ripple out from his exam. In cases in which temporal distancing increases focus on the enduring aspects of stressors, adopting a distant-future perspective may amplify emotional distress.

There are features both of stressful situations and of the individual that may increase the likelihood that temporal distancing will heighten focus on these enduring aspects. In Part 2 of this dissertation, I examine features that fall into three broad categories—1) participants' appraisals of their specific stressful event 2) enduring individual differences and 3) the participant's total level of stress. Each are discussed in turn below.

Appraised Features of the Stressor

A great body of empirical research documents that the way in which people appraise (i.e., perceive and evaluate) stressful events affects their emotional, physiological, and coping responses to these events (for a review see Lazarus & Folkman, 1984; Smith & Kirby, 2011). Event appraisals refer to the individual's *perceptions* of a given event, which are shaped by the objective features of the event, but also by features of the individual, such as their prior experiences and beliefs (Lazarus & Folkman, 1984). Justifying a focus on event appraisals, prior theory and research suggests that individuals' appraisals of events are more tightly linked to their emotional reactions to these events than the "objective" or outward features of the events themselves (Lazarus & Folkman, 1984).

Two broad classes of appraisals that may moderate the effects of temporal distancing include 1) temporal appraisals of stressful events and 2) appraisals of stressor severity.

Temporal appraisals. People make a variety of assessments about the temporal nature of stressful events, including how long a given stressor will endure, whether the same or similar stressors are likely to arise in the future, and with what frequency. We outline three temporal assessments below that influence the stress response (McGrath & Beehr, 1990; McGrath & Tschan, 2004). Each of these features may moderate the impact of temporal distancing on emotional reactivity to stressors, either individually or in combination.

Stressor duration. Stressors vary widely in their perceived duration, that is, in how long they are expected to last. Certain stressors, such as chronic illnesses, are clearly more enduring than others, such as the common cold. Many other stressors have less clear endpoints. For example, family feuds may endure over the long-term or fade quickly as tempers cool and apologies are offered. Adopting a temporally distant perspective on stressors that are expected to be long-lasting or chronic may amplify distress by highlighting the possibility that one will continue to be burdened by them for years to come. In contrast, adopting a distant-future perspective on stressors that are expected to end relatively soon is likely to reduce distress by underscoring their temporary nature. A number of other duration-related judgments—such as judgments related to the clarity of a stressor's endpoint, whether a stressor is expected to get better or worse with the passage of time, and the extent to which one has control over the duration of a stressor—may similarly moderate the effects of temporal distancing on distress.

Persistence or stability of consequences. Closely related to, but distinguishable from perceived stressor duration, are beliefs about whether a given stressor will have persistent consequences. Some stressors are relatively short in duration, but are perceived to have lasting repercussions. For example, a midterm may only take an hour to complete, but as Participant 2's passage illustrates, stressors of short duration can be viewed as having enduring effects.

In our prior studies, temporal distancing heightened participants' awareness that the consequences of stressful events are impermanent. Specifically, across Studies 1a, 1b, and 2, participants in the distant-future conditions were more likely to indicate that they focused on how the current consequences of their problem would fade over time than those in the near-future or control conditions. This finding makes sense considering that many stressful events, particularly small daily hassles, tend not to have lasting consequences. For this reason, temporal distancing may typically underscore the fleeting nature of stressors' repercussions. Temporal distancing may also heighten awareness of the fleeting nature of people's emotional reactions to stressors

that have more enduring effects, for example, the possibility that one will adjust emotionally to the loss of a loved one with the passage of time.

However, when an individual strongly believes that a stressor will have significant lasting repercussions, temporal distancing may be less likely to reduce their distress. For example, if a student is already convinced that their midterm exam grade will affect their future career prospects, placing their exam into a broader time frame may only highlight its presumed enduring effects. As with judgments of duration, people's perceived control over the consequences of stressors, the clarity of these consequences' endpoints, and their perceived reversibility, may further moderate these effects.

Recurrence. A third moderating temporal factor is whether the individual expects the same or a similar type of stressful event to reoccur in the future. In general, temporal distancing may be less effective at reducing the distress associated with recurring stressors. For example, putting an isolated conflict with a supervisor into a broader time perspective may decrease distress by drawing attention to its atypicality and impermanence. In contrast, if these conflicts arise regularly and repeatedly, temporal distancing from them may simply highlight their enduring and pernicious nature.

Severity appraisals. One of the most basic and fundamental judgments people make about events is whether and to what extent they are relevant or important for their well-being (Ellsworth & Scherer, 2003; Lazarus & Folkman, 1984; Smith & Kirby, 2009 and 2011). Our prior research demonstrates that temporal distancing shapes appraisals of importance by leading people to view a variety of stressful events as impermanent, trivial, or even irrelevant in the bigger picture of their lives. But some stressors are so severe or vast that the passage of time may be less likely to diminish their importance. Consequentially, temporally distancing from these very serious stressors, such as the death of a loved one, may not reduce distress. However, the question of *why* temporal distancing from serious stressors might fail to reduce distress is complicated by the high degree of overlap between perceived stressor severity and the aforementioned temporal features of stressors. That is, stressors that are perceived to be serious are often also perceived to be long-lasting, recurring, or irreversible (McGrath & Beehr, 1990). Whether perceived stressor severity moderates the effects of temporal distancing on emotional distress above and beyond the temporal appraisals outlined above is an open question, and one that will be examined in the present research.

Enduring Individual Differences

It is also plausible that certain, relatively stable characteristics of the individual may influence whether and under what conditions temporal distancing reduces distress. We elaborate on a number of characteristics below which may influence whether temporal distancing heightens focus on the enduring or the impermanent aspects of stressors, and in doing so, may moderate the effects of temporal distancing on negative affect.

Optimism. Optimism refers to the extent to which an individual holds favorable general expectancies for their personal future, or put more simply, expects their future to be bright (Carver, Scheier, & Segerstrom, 2010). As described previously, most people hold optimistic expectancies for their future (Carver et al., 2010; Lench & Bench, 2012; Weinstein, 1980), especially for their distant as compared to their near future lives (Heller et al., 2011). While

most people skew positive, there is considerable individual variability in optimism. Pessimists are people who anticipate that their future will be relatively less rosy, expecting relatively more negative future outcomes (Carver et al., 2010). Adopting a temporally distant perspective on stressful events may amplify the distress of pessimists for two reasons. First, doing so may activate broader negative schemas about their future lives, directly increasing their distress. Second, pessimists may be more likely to consider and believe that current stressful events will have lasting negative consequences because, unlike optimists, they are more inclined to entertain potential negative future events and outcomes.

Ironically, it is also possible that pessimists may benefit from temporal distancing to a greater extent than optimists. While optimists expect their distant-future lives to be brighter than pessimists in an absolute sense, compared to optimists, pessimists actually believe that they will experience a sharper decline in their level of life satisfaction from the present to the future (Busseri, Choma, & Sadava, 2008 a & b). Thus, it is conceivable that temporal distancing may reduce the distress of pessimists to a greater extent than that of optimists because pessimists' expectation that their distant-future lives will be considerably brighter than their present lives conflicts with the expectation that current stressors will have lasting negative consequences.

Worry and depressive symptoms. Another potentially important moderator is individuals' chronic propensity to worry. Although definitions of worry vary, most researchers agree that worry is a primarily future-oriented cognitive phenomenon, characterized by preoccupation with negative future events and outcomes, which tends to be accompanied by feelings of anxiety (Davey, 1994; MacLeod, 1994). Some researchers have further characterized worry as “unwanted”, “intrusive”, and “uncontrollable”, especially when referring to pathological levels of worry (Borkovec, 1994). Many of the negative, future-oriented thoughts that characterize individuals high in worry take the form of “what...if” questions in which the individual entertains possible chains of worst-case scenarios—a cognitive process called “catastrophizing” (Tallis, 1990; Vasey & Borkovec, 1992). Chronic worriers have been found to be more prone to catastrophizing than those low in worry, generating more numerous worst-case scenarios when reflecting on personal problems and believing that these feared scenarios are more likely to come to pass (Vasey & Borkovec, 1992). They also experience greater anxiety when reflecting on potential worst-case scenarios than those lower in worry (Vasey & Borkovec, 1992).

Closely related to anxiety and worry is the experience of depressive symptoms, as the two often co-occur (Kessler et al., 2003). Similar to people high in worry, individuals with Major Depressive Disorder (MDD), and those with mild to moderate depressive symptoms expect to experience more negative future events, and are more likely to believe that potential negative future events will come to pass than individuals low in depressive symptoms (MacLeod & Byrne, 1996; Miranda & Mennin, 2007; Thimm, Holte, Brennen, & Wang, 2013). However, unlike individuals solely prone to worry and anxiety, those additionally prone to depression also expect fewer future positive events to occur, and are less likely to believe that potential positive future events will actually materialize (e.g., Bjarehed, Sarkohi, & Andersson, 2010; MacLeod & Byrne, 1996; Miranda & Mennin, 2007; Thimm et al., 2013). In light of their future expectancies, it is unsurprising that depressed individuals commonly report feeling hopeless about the future (Thimm et al., 2013; Miranda et al., 2008; Alloy & Ahrens, 1987).

Given their negative future expectancies, it seems plausible that encouraging individuals high in worry or depressive symptoms to temporally distance from personal problems may either

fail to reduce their distress, or potentially backfire and exacerbate it. For example, asking chronic worriers to consider how a stressor fits into the bigger picture of their lives may simply trigger automatic patterns of “what if...” thinking, instead of an impermanence focus. If this is the case, temporal distancing may worsen the distress of chronic worriers by widening the scope of their future concerns. Moreover, depressed individuals may suffer doubly when reflecting on how personal problems fit into their broader future, because they may overestimate the potential negative repercussions while simultaneously overlooking the potential for positive growth.

On the other hand, prior research suggests that other types of psychological distancing strategies (i.e., self-distancing) may have *more* pronounced benefits for individuals prone to emotional distress, such as those with Major Depressive Disorder (Kross & Ayduk, 2009; Kross, Gard, Deldin, Clifton, & Ayduk, 2012). Could this also be the case for temporal distancing? This possibility is consistent with prior theorizing that emotional distress within clinical disorders is maintained, in part, due to difficulties seeing the “bigger picture” surrounding negative events (Schartau et al., 2009). It is also broadly consistent with correlational research demonstrating that people higher in worry and depressive symptoms tend to engage in temporal distancing less frequently (Bruehlman-Senecal, Ayduk, & John, under review). However, to the best of our knowledge, no prior research has formally examined whether individuals prone to worry or depression benefit more from temporal distancing, an important question which we explore in the present research.

Future-oriented cognitions.

Temporal distancing. Recent research indicates that individuals vary in the extent to which they naturally and habitually utilize temporal distancing as an emotion-regulation strategy (Bruehlman-Senecal, Ayduk, and John, under review). Simply put, some people are more naturally inclined to adopt a broader future time perspective on negative experiences, and to focus on their impermanent aspects, without any formal prompting or training to do so. Moreover, habitual temporal distancing tendencies have been found to positively predict a number of beneficial psychological health outcomes. People more naturally inclined towards temporal distancing (i.e., high temporal distancers) are less emotionally reactive to everyday stressors, appraise their coping resources more favorably, and tend to ruminate less frequently on stressful experiences than those lower in this tendency. They also report greater positive affect and life satisfaction, and lesser negative affect and worry, both concurrently and prospectively (Bruehlman-Senecal et al., under review).

This research raises the question: who will benefit more from formal instruction in temporal distancing—people who are already implementing this strategy or people to whom it is relatively new? It seems possible that high temporal distancers may benefit more from experimental instructions to distance because they are more practiced, and perhaps therefore more skilled at effectively implementing this strategy. However, it also seems plausible that low temporal distancers may benefit more from temporal distancing precisely because they are not already implementing this strategy, and thus have more to gain by doing so.

Future time perspective. Another important time-perspective factor on which individuals vary is the extent to which they perceive their personal futures as expansive and filled with opportunities versus limited in scope and potential. This individual difference, called future time perspective, is strongly correlated but not redundant with individuals’ chronological age (Carstensen & Lang, 1996; Lang & Carstensen, 2002). It is possible that individuals who see their future as limited may derive fewer benefits from temporally distancing than those who

see their future as expansive, simply because they feel that they have less to look forward to in the distant future. However, prior research demonstrates that emotion-regulation goals tend to be more salient for individuals who perceive their future as limited (Fredrickson & Carstensen, 1990; Lang & Carstensen, 2002). Consistent with this finding, people who perceive their future as limited may be more motivated to view the negative repercussions associated with any one given stressor as limited both in time and in scope.

Broader beliefs about stress. Individuals' broader beliefs about stress may also shape the emotion regulatory consequences of temporal distancing by influencing people's willingness or ability to consider the impermanent aspects of their stressors. We consider two such broader beliefs here, beliefs about causes and controllability of stress.

Beliefs about the causes of stress. A large body of work on attributional style demonstrates that individuals differ in the extent to which they view the *causes* of negative and positive events in their lives as stable across time, internal to the self, and global (i.e., affecting many important domains in life). This research consistently demonstrates that the tendency to view the causes of negative events as stable, internal, and global contributes to the development and maintenance of emotional distress and depression (for a review, see Peterson & Seligman, 1984).

Most pertinent to the current work are beliefs about the *stability* of the causes of negative or otherwise stressful events. It is plausible that adopting a distant-future perspective on stressors may not reduce the distress of someone who views the causes of stress as stable, because doing so may simply activate the belief that these causes will be present long into the future. On the other hand, many aspects of stressful events, not just their causes, but also one's thoughts and feelings regarding them, can change over time. It is conceivable that people who view the *causes* of stressful events as stable may nonetheless perceive their own reactions to these events as temporally bound. If so, adopting a distant-future perspective on current stressors may alleviate the distress even of those individuals who tend to see source(s) of stress in their lives as unchanging.

Beliefs about the controllability of stress. Recent research suggests that individuals also differ in the extent to which they view emotions as controllable and amenable to deliberate change. Individuals who believe that people are capable of changing their emotions have been found to have higher well-being than those who view emotions as relatively fixed (Tamir, John, Srivastava, & Gross, 2007). Similar to beliefs about the malleability of emotions, individuals may differ in their broader beliefs about whether people are capable of changing their levels of stress and/or their reactions to stress.

People who believe that their reactions to stress are malleable and within their control may benefit more from a wide range of stress regulation techniques. After all, if one believes that people are incapable of modulating their stress reactivity, there is very little point to utilizing stress regulation strategies. More pertinent to temporal distancing, the belief that people are capable of changing their reactions to stress is broadly congruent with the belief that people's perceptions of stressors change with the passage of time. Thus, it seems plausible that individuals who believe they can change the way they relate to stress will benefit more from temporal distancing than those who view their reactions to stress as relatively fixed and beyond their control.

Recent Stressful Life Events and Perceived Stress

There may also be broader features of an individual's present or prior life circumstances that constrain the effectiveness of temporal distancing. One potential feature is the total amount of stress that the individual has experienced, either recently, or in the past. People who have experienced frequent, chronic, and/or severe stressors may benefit less from putting any one stressful event into a broader time perspective, because it may be difficult and/or unrealistic for them to imagine a time when this or other stressors won't be a significant part of their lives.

In exploring this possibility, there are a number of ways to conceptualize and measure an individual's total level of stress. One common approach involves having people list, weigh (according to severity), and tabulate the number of severe stressful events (e.g., the death of a loved one, divorce, jail term, etc.) that they have experienced in the recent past (e.g., Holmes & Rahe, 1967). A second approach is to measure the cumulative, minor stressors that characterize day-to-day living, commonly called "daily hassles", such as being stuck in traffic, noise pollution, and conflicts with coworkers, etc. (e.g., Kanner, Coyne, Schaefer, & Lazarus, 1981). The logic underlying this second approach is that these minor stressors occur with greater frequency than major life events, add up to take a cumulative toll on well-being, and may even mediate the effects of major life stressors on psychological health (Kanner et al., 1981). For example, a divorce may be stressful precisely because it changes people's daily routines in many small ways. A third approach is to measure individuals' subjective assessments of their global levels of life stress with questions such as: "*In the last month, how often have you felt nervous and stressed?*" (e.g., Cohen, Kamarck, & Mermelstein, 1983). Proponents of this third approach point out that the subjective meaning of objective stressors varies widely from person-to-person, and that an individual's perceived global stress level may be a more proximal and powerful predictor of their psychological well-being than the number or type(s) of stressful events they have encountered (Cohen et al., 1983). While there has been debate over which approach is the best for assessing total stress, these three approaches can be treated as complementary. Further arguing for the use of multiple stress measures, both of the latter two methods have been shown to predict variance in well-being outcomes that is not captured by the first method (Cohen et al., 1983; Kanner et al. 1981). Thus, in the present research, we utilized all three measures of stress: major life events, daily hassles, and perceived stress.

Study 7

In our final study, Study 7, we explored boundary conditions of the distress buffering effects of temporal distancing, examining the wide range of plausible moderators described above. Our primary question was whether any of these variables moderated the main effect of temporal distance on reduced negative affect. If so, we wished to know whether these moderators reduced the emotion-regulatory effectiveness of temporal distancing by leading to an increased focus on the enduring rather than the impermanent aspects of stressors. Consistent with these goals, the dependent variables of interest were negative affect and impermanence focus.

Methods

Participants

Participants in Study 7 were UC Berkeley students, alumni, and Mturk workers recruited through psychology classes, the Xlab participant pool at the Haas School of Business, and Amazon's Mechanical Turk (Mturk) website, respectively. 385 participants (205 students, 27 alumni, and 153 Mturk workers) completed both Session 1 and Session 2 of the study. An additional 108 participants completed Session 1 but did not return to complete Session 2. Participants who did versus did not complete both phases of the study did not differ in their levels of any of the key moderator variables (all F s < 2.70, ps > .10).

As in prior studies, we excluded participants' data if hidden page timing revealed that they failed to listen to the audio-instructions containing the critical manipulation in full. The data from 28 participants (7% of the sample) was excluded on this basis. Participants' data was also excluded if they indicated that they had participated in a substantively similar experiment in the past, leading to the exclusion of the data of four additional participants (1% of the sample). This left a total of 353 participants, 178 UC Berkeley undergraduates (134 women, mean age = 21.1 years, SD = 3.8), 27 UC Berkeley alumni (18 women, mean age = 25.2 years, SD = 2.98), and 148 Mturk workers (105 women, mean age = 31.2 years, SD = 10.5).

Our sample size is large because large sample sizes are required to have adequate power to detect interaction effects (for a review, see Aiken & West, 1991; Cohen, Cohen, West, & Aiken, 2003). When predictor reliabilities are perfect, a sample size of 392 is needed to detect small interaction effects, and a sample size of 55 is needed to detect medium interaction effects with a power of .80 (Aiken & West, 1991; Cohen, Cohen, West, & Aiken, 2003). When predictor reliabilities are around .70 (which is generally considered to be acceptable), and expected effect sizes are medium in magnitude, a sample of over 200 participants is required to have adequate power to detect significant interactions with a power of .80 (Aiken & West, 1991). Thus, Study 7 was adequately powered to detect medium sized interaction effects for predictors with acceptable reliabilities, and was adequately powered to detect medium-small to medium sized interaction effects for predictors with good to perfect reliability.

Procedure

Participants completed two online surveys administered on separate days. They first completed the background survey, described below. Two days later they were invited to complete the second survey, which contained the experimental manipulation.

Session 1: Background survey. The background survey contained all of the individual-difference measures (i.e., optimism, worry, etc.), and the perceived stress measure. After completing these measures, participants were asked to identify the most bothersome source of stress in their lives at the present moment, and to generate a one to two word descriptor of their stressor for use in the second part of the study. Participants then completed the stressor appraisal measures (e.g., appraising their stressors' duration, severity, etc.) and indicated the amount of time that had elapsed since their stressor first arose. Finally, participants completed the daily hassles and major life events measures. At the end of the survey, participants were reminded that they would be contacted in two days to complete the second part of the study.

Session 2: Temporal distancing experiment. Participants received a link to the second part of the survey containing the experimental manipulation two days after they completed the background survey. They were given three days to complete this second survey. Following the

design of the prior Study 1a, participants were reminded of their personal stressor via a written prompt. They were then randomly assigned to reflect on their stressor from either a near future (1 week into the future) or distant future (10 years into the future) perspective. Subsequently, participants rated their level of negative and positive affect as well as the extent to which they focused on the impermanent aspects of their stressor.

Measures

Session 1: Background survey.

Stressor appraisal moderators.

Predicted duration of stressor/stressor consequences. Participants' appraisals of how long their stressor and its associated consequences would endure was measured with the items: "How long do you expect this problem to last?", and "How long do you expect this problem to affect your life?". Participants responded on sliding scales ranging from "0 years" to "10 years or more."

Confidence in duration predictions. Participants' certainty or confidence in their temporal duration appraisals was measured with the items: "How certain are you that your problem will last this long?" and "How certain are you that your problem will affect your life for this long?". These questions immediately followed the respective duration questions above, and participants responded on a 5-pt scale ranging from 1 = *very uncertain* to 5 = *very certain*.

Perceived control over the stressor's time course. We measured participants' perceived control over the time course of their stressors with the questions: "How much control do you have over when this problem will end?" and "How much control do you have over how long this problem will affect you?" on a 5-pt scale ranging from 1 = *very little or no control* to 5 = *complete control*. For exploratory purposes, we also included an item measuring perceived control over the outcomes of the stressor, specifically: "How much control do you have over the way things will work out in this situation?", measured on the same 5-pt scale.

Perceived reversibility. Participants rated how reversible they perceived their stressor to be with the items: "To what extent will your life return to the way it was before this event arose?" (1 = *not at all* to 5 = *completely*) and "To what extent are the consequences of this event reversible?" (1 = *completely irreversible* to 5 = *completely reversible*). Related to the concept of reversibility, we also measured the extent to which participants believed their stressor would get better with the passage of time with the item: "Do you expect this problem to get better or worse with the passage of time?" (1 = *much worse* to 5 = *much better*).

Perceived recurrence. Participants' predictions about their stressors' future recurrence was measured with the item: "How often do you expect this type of problem to arise in the future?" on a 5-pt scale ranging from 1 = *very infrequently* to 5 = *very frequently*.

Perceived present severity. Participants' perceptions of the severity of their stressors at present was measured with items: "How serious or severe is this problem in your opinion?" (1 = *not at all* to 5 = *extremely*), "How much distress is this problem causing you right now?" (1 = *none at all* to 5 = *a great deal*), and "To what extent has this problem affected your day-to-day life?" (1 = *very little or not at all* to 5 = *a great deal*).

Predicted future severity. Participants' predictions about how severe their stressor would be in the distant future were measured with the items: "How serious or severe will this problem be in the distant future in your opinion?", "How much distress will this problem cause you in the

distant future?”, and “To what extent will this problem affect your day-to-day life in the distant future?”. Items were rated on scales identical to those for perceived present severity.

Stressor appraisals data exploration. Prior to running Study 7, pilot testing was conducted to assess whether the stressor appraisal items loaded on the proposed appraisal dimensions in the manner described above, as well as to examine the overlap between the appraisal dimensions with an eye towards collapsing redundant ones. Piloting was conducted on a sample of 102 Mturk participants (49 women, mean age = 33.2, $SD = 11.9$). Participants reflected on the most bothersome source of stress in their lives at present, and responded to the stressor appraisal items with respect to that stressor. Participants also rated five other stressors (spanning a range of severity, from the death of a loved one to being stuck in traffic) across these same items. Participants’ ratings of each of these six stressors were factor analyzed separately. For each factor analysis, a six-factor solution was specified, corresponding to six of the seven appraisal dimensions listed above: 1) stressor duration, 2) confidence in duration predictions, 3) controllability, 4) reversibility, 5) recurrence, and 6) present severity. We added the items corresponding to the seventh dimension—predicted future severity—subsequent to this pilot.

With few exceptions, the items consistently loaded onto the stressor appraisal dimensions in the manner specified above. The two exceptions to this pattern were the items: “How often do you expect this type of problem to arise in the future?” (future frequency), and “Do you expect this problem to get better or worse with the passage of time?” (better), which had inconsistent loadings from stressor-to-stressor. Importantly, the proposed stressor dimensions were related, but not highly overlapping, with the average correlation between any two dimensions not exceeding .40.

The factor structure observed in our pilot study replicated in Study 7. Specifically, the stressor appraisal items loaded on the seven proposed appraisal dimensions in the predicted manner, with the exception of the same two items as above. The item “better” loaded on its own factor, and the item “future frequency” did not load well onto any factor. For this reason, these two items were analyzed as independent moderators. Alphas for each stressor appraisal dimension were adequately high, ranging from .78 to .91, with the exception of the alpha for reversibility, which was only .57. For this reason, the two items making up the reversibility dimension were also analyzed as independent moderators. We report descriptive statistics for each of these appraisal dimensions in Table 7.

Individual difference moderators.

Optimism. Optimism was measured with the 6-item Life Orientation Test-Revised (LOT-R), which assesses the tendency to hold positive expectations about the future. Participants responded to statements such as, “In uncertain times, I usually expect the best”, on a 5-point (1 = *strongly disagree* to 5 = *strongly agree*) scale (Scheier, Carver, & Bridges, 1994), $\alpha = .86$, $M = 3.32$, $SD = 0.80$.

Worry. The chronic tendency to worry was measured with the 16-item Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990). Participants responded to statements such as “I worry all the time” on a 5-point (1 = *not at all typical* to 5 = *very typical*) scale. Items were averaged to combine, $\alpha = .95$, $M = 3.30$, $SD = 0.91$.

Depressive symptoms. Depressive symptoms were measured with the 20-item Center for Epidemiological Studies Depression Scale (*CES-D*; Radloff, 1977), which measures the experience of these symptoms over the prior week on a 4-point (1 = *rarely or none of the time* to

4 = *most or all of the time*) scale. One sample item reads: “I felt everything I did was an effort.” Items were summed to combine, $\alpha = .92$, $M = 16.46$, $SD = 11.22$.

Temporal distancing. Temporal distancing was measured with the 8-item Temporal Distancing Scale (Bruehlman-Senecal et al., under review), which measures the general tendency to place negative experiences into a broader temporal perspective and to recognize that one’s reactions to such experiences are temporary and malleable (e.g., “I focus on how my feelings about the event may change with time” (1 = *strongly disagree* to 7 = *strongly agree*). Items were reverse scored as appropriate and then averaged to calculate temporal distancing scores, $\alpha = .85$, $M = 4.60$, $SD = 1.04$.

Future time perspective. The 10-item *Future Time Perspective Scale (FTP)* (Lang & Carstensen, 2002) was used to measure participants’ perception of their future as expansive. One sample item reads: “Most of my life lies ahead of me”. Participants made their responses on a 7-point (1 = *very untrue* to 7 = *very true*) scale. Items were reverse scored as appropriate and then averaged to combine, $\alpha = .88$, $M = 4.64$, $SD = 1.05$.

Implicit theories about the controllability of stress. General beliefs about the controllability of stress were measured with four items adapted from Tamir et al.’s (2007) implicit beliefs scale, with one sample item reading: “If they want to, people can change how stressed they are.” Participants made their responses on a 7-point (1 = *strongly disagree* to 7 = *strongly agree*) scale. Items were reverse scored as appropriate and then averaged, $\alpha = .86$, $M = 5.36$, $SD = 1.05$.

Attributions for the causes of stressful life events. A modified version of the Attributional Styles Questionnaire (ASQ) (Peterson et al., 1982) was used to assess participants’ attributions for the causes of stress in their lives. Participants were first asked to indicate what they thought was the single, largest cause of stress in their lives. They then rated the extent to which they believed this cause was due to internal (1 = *totally due to other people or circumstances* to 7 = *totally due to me*), stable (1 = *will never again be present* to 7 = *will always be present*), and global factors (1 = *influences just this particular situation* to 7 = *influences all situations in my life*). Each dimension was measured with a single item, and analyzed separately from the other dimensions, internal style $M = 4.48$, $SD = 1.76$; stable style $M = 5.38$, $SD = 1.46$; and global style $M = 5.34$, $SD = 1.55$.

Stress moderators.

Major stressful life events. Hobson et al.’s (1998) 51-item Revised Social Rating Scale, was used to measure the occurrence of major stressors (e.g., the death of a loved one, major injury or illness to self, etc.). As with the original scale, participants were asked to indicate whether they had experienced each of a series of major stressful events over the past year with a simple yes/no response. Events were weighted using the weights provided by Hobson et al. (1998) such that more serious stressors (e.g., the death of a spouse) contributed more to the total stress score than less serious ones (e.g., change in residence), and then summed, with a higher score indicating a greater level of stress, $M = 242.47$, $SD = 209.63$.

Daily hassles. The 41-item Survey of Recent Life Experiences (Kohn & Macdonald, 1992) was used to measure the presence of daily hassles in the Mturk and alumni samples, and the corresponding 49-item Inventory of College Students’ Recent Life Experiences (Kohn, Lafreniere, & Gurevich, 1992) was used to measure daily hassles in the college student sample. Both surveys ask participants to report the frequency with which they have experienced a variety of daily hassles (e.g., disliking their work, having too many things to do at once, etc.) over the

prior month on a 4-point (1 = *not at all part of my life* to 4 = *very much a part of my life*) scale. Participants' scores on each of the two measures were averaged separately. Then scores from the college and non-college student versions of the inventory were combined to form a single measure of daily hassles, $M = 1.76$, $SD = 0.46$.

Perceived stress. Participants' subjective appraisals of their stress levels were measured with a short 4-item version of the Perceived Stress Scale (Cohen et al., 1983). This scale measures perceived stress over the prior month with items such as "In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?" on a 5-point (1 = *never* to 5 = *very often*) scale. Items were reverse scored as appropriate and then averaged to combine, $\alpha = .82$, $M = 2.75$, $SD = 0.79$.

Demographic moderators. We also explored whether participants' age or the socioeconomic status (SES) of their parents moderated our findings. We focused on parental SES as opposed to participants own SES because the majority of our sample were college students, and so their personal SES was likely to be as-of-yet ill defined.

Parents' SES. Parents' SES was measured with three items assessing parental income and education. Participants responded to the item: "Please provide information about the total annual household income of the people who supported you as you were growing up on an 8-pt scale (1 = *less than 15,000* to 8 = *greater than 150,000*). Participants also responded to the following two items on 4-point scale: "Indicate the highest level of education completed by your mother", and "Indicate the highest level of education completed by your father" (1 = *less than high school* to 4 = *postgraduate degree (e.g., Masters, PhD, MD)*). Items were z-scored and then averaged to combine.

Elapsed time (covariate). The amount of time that elapsed since the participants' stressor first arose was measured in a manner identical to Studies 1b, 2 and 6, $M = 4.48$, $SD = 1.48$, and entered as a covariate in all analyses.

Session 2: Temporal distancing experiment.

Post-manipulation emotions. As in our prior studies, we used Folkman and Lazarus's (1985) measure to assess stressor-related emotions, $\alpha = .90$, $M = 2.82$, $SD = 0.74$.

Post-manipulation impermanence. We utilized the same three multiple-choice items used in our prior studies to measure impermanence, $\alpha = .79$, $M = 4.56$, $SD = 1.45$.

Temporal perspective manipulation check. The same temporal perspective manipulation check used in prior studies was included here, $M = 4.28$, $SD = 2.37$.

Results

Analytic Strategy

To address whether any of the proposed moderator variables interacted with temporal distance (near vs. distant) to predict negative affect or impermanence, we ran a series of between-subject ANCOVAs. All of the ANCOVAs shared the same core model, with the following predictors: a) temporal distance (near-future vs. distant-future) b) a given moderator variable c) the interaction between temporal distance and the selected moderator variable and d)

elapsed time (as a covariate). In cases in which the effect of condition on negative affect was moderated by one of the proposed moderator variables, we examined whether this moderated main effect was *mediated* by impermanence focus.

Despite the large number of moderators examined—twenty-three in total—we chose not select a more conservative (i.e., smaller) *p*-value threshold for significance. We made this decision because, due to the exploratory nature of the research, we were more concerned with potentially overlooking an important, albeit weaker, moderator than with identifying a moderator that might prove to have a null effect over the long run.

Preliminary Analyses

To determine whether it was appropriate to conduct analyses collapsed across sample, we first examined whether there were any 3-way interactions between temporal distance (near vs. distant), sample (Mturk, student, and alumni), and our moderators to predict negative affect and impermanence. We found no significant 3-way interactions to predict negative affect (all *F*s < 1.55 all *p*s > .22). We found only one significant interaction to predict impermanence, that between experimentally-manipulated temporal distance, sample, and trait temporal distancing tendencies ($F(2, 337) = 3.88, p = .02$). This single interaction was not predicted a priori, and may have been due to chance given the number of analyses conducted. In light of the larger pattern of lack of moderation by sample, we decided to conduct our analyses collapsed across sample.

Additionally, as in our prior studies, condition had a significant effect on the temporal perspective participants adopted (i.e., the manipulation check) with the distant-future condition focusing more on the distant future than the near-future condition, $F(1, 348) = 590.80, p < .001, \eta^2_p = .63$. There was no moderation of this main effect by sample ($F(2, 344) = .84, p = .43$), suggesting that participants across student, Mturk, and alumni samples were equally effective at implementing the temporal distancing instructions.

Main Analyses

Post-manipulation emotions. We first examined whether the main effect of condition on negative affect, observed in Studies 1-3, replicated here. As in our prior studies, participants in the distant-future condition reported significantly less negative affect than those in the near-future condition ($F(1, 348) = 27.98, p < .001, \eta^2_p = .07$).

Next, we examined moderators of this main effect. Of the twenty-three assessed moderator variables, only two significantly moderated the relationship between temporal distancing and reduced distress: worry ($F(1, 346) = 3.84, p = .05, \eta^2_p = .01$) and the extent to which one believed that their life would return to the way that it was before their stressor arose (return), $F(1, 346) = 3.77, p = .05, \eta^2_p = .01$.

To explore these interactions, we tested the simple effects of condition on negative affect at one standard deviation above and below the mean of both moderators. These analyses indicated that the emotion-regulatory benefits of temporal distancing were more pronounced for participants high in worry ($F(1, 346) = 27.34, p < .001, \eta^2_p = .07$), than those low in worry ($F(1, 346) = 6.00, p = .02, \eta^2_p = .02$), although both low and high worriers reported less negative affect in the distant as compared to the near-future condition (see Figure 3). We also found the effects of temporal distancing on negative affect to be slightly less pronounced for people who felt that

their lives had little potential to return to normal ($F(1, 346) = 6.36, p = .01, \eta^2_p = .02$), than for those who felt that this potential was high ($F(1, 346) = 27.75, p = .001, \eta^2_p = .07$). However, again at both low and high levels of expected return to normalcy, the distant-future condition reported less negative affect than the near-future condition (see Figure 4).

Post-manipulation impermanence. As in our prior studies, the main effect of condition on impermanence replicated in Study 7, with the distant future condition reporting greater focus on the impermanent aspects of their stressors than the near future condition, $F(1, 347) = 53.04, p < .001, \eta^2_p = .13$.

Only one of the assessed moderators—daily hassles—significantly moderated the relationship between temporal distance and impermanence focus, $F(1, 346) = 3.77, p = .05, \eta^2_p = .01$. To explore this interaction, we tested the simple effects of condition on impermanence at one standard deviation above and below the mean level of daily hassles. As depicted in Figure 5, the effect of temporal distance on impermanence focus was slightly less pronounced, but still significant for participants who had been experiencing high levels of daily hassles ($F(1, 345) = 14.19, p < .001, \eta^2_p = .04$) as compared to those who had experienced low levels of daily hassles ($F(1, 345) = 43.66, p < .001, \eta^2_p = .11$).

Mediational analyses. We first examined whether, as in Studies 1a-3, the connection between temporal distancing and reduced distress was significantly mediated by impermanence focus. As in prior studies, we used bootstrapping methods to construct 95% confidence intervals based on 5,000 random samples utilizing Process (Hayes, 2013). Similar to our prior studies, an increased focus on the impermanent aspects of the stressors played a significant role in accounting for the link between temporal distance and reduced distress, mediated effect = $-.24, SE = .05, 95\% CI = -.34$ to $-.16$.

We next examined whether increased impermanence focus was a significant mediator of the link between temporal distance and reduced distress both at high and low levels of worry, and for people who felt that their life had little versus high potential to return to normal. In both mediated moderation analyses, we modeled the observed interaction between condition and the respective moderator (i.e., worry and return to normalcy) to predict negative affect in the c-path (the direct path from condition to affect). We also modeled the predicted interaction between condition and the respective moderator to predict impermanence focus in the b-path (the indirect path from condition to impermanence focus). To model both interactions simultaneously, we selected Process Model 8 (see Hayes, 2013). We examined the conditional indirect effect of impermanence on negative affect at three values of both respective moderators: the mean, and 1 standard deviation above and below the mean.

Impermanence focus was found to be a significant mediator of the connection between condition and negative affect across high (mediated effect = $-.27, SE = .05, 95\% CI = -.38$ to $-.17$), low (mediated effect = $-.18, SE = .05, 95\% CI = -.29$ to $-.09$), and mean (mediated effect = $-.23, SE = .04, 95\% CI = -.31$ to $-.15$) levels of worry. Likewise, impermanence focus significantly mediated this same connection across high (mediated effect = $-.25, SE = .06, 95\% CI = -.37$ to $-.15$), low (mediated effect = $-.22, SE = .05, 95\% CI = -.33$ to $-.13$), and mean (mediated effect = $-.23, SE = .05, 95\% CI = -.33$ to $-.16$) levels of expected return to normalcy. This pattern of findings indicates that impermanence focus is a robust mediator of the link between temporal distancing and reduced distress, even for those participants who benefited

slightly less from temporal distancing, such as participants low in worry and those who felt their life had limited potential to return to normal.

Study 7 Discussion

Taken together, the results of Study 7 support the conclusion that temporal distancing effectively reduces the distress associated with a wide range of stressors, and for a wide range of individuals. The most notable finding of Study 7 was the overall lack of moderation of the main effect of temporal distancing on reduced negative affect. Despite our large sample size, only two variables—trait worry and perceived potential for life to return to normal—significantly moderated the link between temporal distancing and negative affect. Both of these interactions were weak, with a partial eta squared of only .01. For context, an eta-squared of .02 is commonly referenced as a small effect (Cohen, 1988; Miles & Shevlin, 2001). More critically, we did not find any conditions under which adopting a distant-future perspective on stressors led to greater negative affect or a lesser degree of focus on the impermanent aspects of stressors than adopting a near-future perspective. Moreover, impermanence focus appears to be a robust mediator of the link between temporal distancing and reduced distress, even for participants who benefited slightly less from temporal distancing (e.g., those who believed their lives had less potential to return to normal).

General Discussion

The present research had four main aims. The first was to test whether temporal distancing from real-world stressors reduces distress. Our studies provided converging evidence that adopting a distant-future perspective on a variety of stressful events reduces distress more effectively than adopting a near-future perspective (Studies 1a, 1b, 2, and 7) or an undefined future-oriented perspective (Studies 1b and 3). They also showed that temporal distancing has benefits above and beyond the strategies people naturally draw upon when reflecting on stressful events (Study 3). These findings converge with those of Yanagisawa et al. (2011), and expand upon them by demonstrating that temporal distancing reduces emotional reactivity to real-world stressors and not just artificial laboratory-based ones. In doing so, they add to the very small body of research on the emotion-regulatory benefits of temporal distancing, as only one prior study has examined these effects (Yanagisawa et al., 2011).

Our second aim was to identify the cognitive pathway(s) through which temporal distancing diminishes distress. Across studies, impermanence focus—that is, the extent to which participants focused on the transitory aspects of their stressors—helped to account for the affective benefits of temporal distancing. Moreover, impermanence focus, both manipulated (Study 6) and measured as an individual difference variable (Studies 4 and 5), predicted affective reactions to stressors in a manner parallel to temporal distancing. These findings further bolster the idea that impermanence focus plays a causal role in decreasing stress reactivity. They are also broadly consistent with research demonstrating that mindfulness training—a component of which involves learning to perceive thoughts and feelings as transitory events in the mind—reduces emotional reactivity to negative events (e.g., Britton, Shahar, Szepsenwol, & Jacobs, 2012; Broderick, 2005). However, the present research is the first to suggest that placing negative events into a more distant time perspective may heighten awareness of their impermanence in a manner similar to adopting a mindful, present-oriented focus.

These findings also raise broader questions about the nature of the relationship between temporal distancing and impermanence focus. In the present research, temporal distancing from stressors was conceptualized as the act of mentally placing stressors into a broader future time perspective. In contrast, impermanence focus was presented as one of four proposed *cognitive consequences* of temporal distancing, rather than the act of temporal distancing itself. Nonetheless, the question remains of whether temporal distancing is empirically distinguishable from impermanence focus. Our findings suggest that it is. Across Studies 1a, 1b, 2, 3, 6 & 7 the temporal perspective participants achieved (as measured by our manipulation check) was significantly related to impermanence focus, but not so highly as to suggest that they are measuring the same construct (r 's ranged from .26 to .52). Moreover, while the temporal distance manipulation reliably affected impermanence focus across our studies, our impermanence manipulation did not have a parallel impact on the temporal perspective participants adopted in Study 6. This latter finding indicates that while temporal distancing leads people to focus on the impermanence of stressors, focusing on stressors' impermanence does not necessarily lead people to adopt a distant-future perspective. Finally, our temporal distance manipulation predicted variance in outcomes not predicted by the impermanence manipulation, such as future idealization, which is theoretically related to temporal distancing but not impermanence focus. Taken together, these results indicate that impermanence focus is distinct from and just one aspect of temporal distancing, albeit one that plays a critical role in accounting for its distress reducing effects.

In Studies 1a and 1b, participants' future idealization and level of avoidance also accounted for a significant portion of the relationship between temporal distancing and reduced distress. This suggests that temporal distancing may influence emotional reactions to stressors through more than one pathway, an unsurprising finding given that most psychological phenomena are multiply determined (see Bullock et al., 2010). Why this finding failed to replicate in Studies 2 and 3 remains unclear. It is possible that these variables are important, but weaker mediators of the effects of temporal distancing on emotional distress. However, it is equally possible that, with repeated replications, these proposed mediators will fall by the wayside.

A third goal of this research was to explore whether temporal distancing, and its associated cognitive processes, have any implications for broader functioning. Since there was little prior work on this topic, we took a broad approach to this question—examining how these variables relate to both academic and psychological functioning. There was no evidence that temporal distancing or impermanence focus influenced longer-term academic functioning, suggesting that these processes are not likely to undercut self-improvement motivation, at least not within the academic domain. However, future research that more directly assesses the effects of temporal distancing and impermanence focus on problem-solving behaviors, both within and outside of academic settings is needed to more unequivocally address this issue.

In contrast, individual differences in impermanence focus *were* predictive of broader psychological functioning, with impermanence focus negatively predicting depression and worry and positively predicting satisfaction with life. These results suggest that the tendency to focus on the impermanent aspects of stressful events may help to sustain long-term psychological health. While promising, these findings should be interpreted with caution, due to the cross-sectional design of Study 5. Future longitudinal and intervention-based research will be needed to determine whether temporal distancing or impermanence focus play a causal role in supporting well-being.

The fourth and final goal of the present research was to explore boundary conditions of the stress buffering effects of temporal distancing. We examined a wide range of factors that might influence individuals' degree of focus on the impermanent vs. enduring aspects of their personal stressors, and in doing so, moderate their level of distress. These factors included both appraised characteristics of the stressor under consideration (e.g., its expected duration, severity, etc.), stable individual difference factors (e.g., optimism, worry, etc.), and participants' level of stress at the time of the study. Surprisingly, we found very few significant moderators of the link between temporal distancing and reduced distress. Critically, there were no conditions under which adopting a distant-future perspective on stressors led to greater negative affect or a lesser degree of focus on the impermanent aspects of stressors than adopting a near-future perspective. Moreover, temporal distancing was found to be equally effective at reducing distress across Mturk, student, and alumni samples, increasing confidence in the generalizability of these findings. Taken together, the results of Study 7 suggest that temporal distancing may be a broadly effective strategy for regulating negative emotions surrounding a wide variety of stressors for a wide range of individuals.

Broader Implications

People's emotional reactions to both major and minor life stressors have important implications for their long-term psychological health. People who respond to major life stressors or transitions (e.g., widowhood, severe injuries, etc.) with heightened negative emotional reactivity recover more slowly from these events (e.g., Lucas, Clark, Georgellis, & Diener, 2003; Quale & Schanke, 2010). Affective reactivity to less severe, daily stressors has also been found to positively predict negative affect, anxiety, and depression up to a decade into the future (Charles, Piazza, Mogle, Sliwinski, & Almeida, 2013; O'Neill, Cohen, Tolpin, & Gunthert, 2004; Parrish, Cohen, & Laurenceau, 2011). Given the psychological health impact of heightened stress reactivity, it is important to identify cognitive strategies that help people to better cope with stressors.

Temporal distancing seems to be a promising coping strategy for two reasons. First, the results of Study 7 suggest that temporal distancing is a broadly effective strategy for reducing emotional reactivity to stress. Despite our large sample size, and the wide range of potential moderators examined, we found no conditions under which adopting a distant-future perspective on personal stressors led to greater emotional distress than adopting a near-future perspective. This lack of moderation is consistent with the possibility that temporal distancing is an effective strategy for reducing the distress of people experiencing a wide range of stressors—both those that are relatively short-term and trivial, as well as those that are relatively long-term and severe. Our results also suggest that temporal distancing might be effective for a wide range of individuals. Apart from worry, we found no significant individual difference moderators of the link between temporal distance and reduced negative affect. Sample (Mturk, student, vs. alumni) similarly failed to moderate this relationship.

Second, temporal distancing appears to be relatively easy to implement. Our manipulation check demonstrated that the distant-future conditions were relatively successful at remaining focused on their distant future—across studies the mean of the distant-future group ranged from 5.30 to 6.11 on a 1 = *focused exclusively on the near future* to 7 = *focused exclusively on the distant future* scale. These results suggest that temporal distancing may serve as a stress management strategy that is both widely effective and easy to enact.

The present studies also demonstrate that impermanence focus is integral to temporal distancing, accounting in large part for its distress-reducing effects. This finding raises the broader question of how the present research relates to prior work on the relationship between the perceived stability of negative experiences and emotional well-being. A large body of work on attributional style suggests that the tendency to view the *causes* of negative life events as stable, along with several other attributional tendencies, contributes to emotional distress and depression (for a review, see Peterson & Seligman, 1984). Prior research also suggests that holding the general belief that people are capable of changing their emotional state supports long-term well-being (Tamir et al., 2007). The present research converges with this prior work by highlighting the psychological benefits of viewing negative experiences as malleable. It also expands upon prior research by identifying a specific, easy to implement strategy that can momentarily shift the focus of individuals' attention towards the impermanent aspects of negative experiences. What remains unclear is whether training people to temporally distance from stressors on a habitual basis changes their broader beliefs about the stability of negative experiences. Future work that examines this and related possibilities would help to connect these lines of research.

Finally, there has been debate over whether distancing reduces distress by giving rise to adaptive reappraisals of negative events or whether it functions as a maladaptive avoidance strategy (e.g., Ayduk & Kross, 2009; McIsaac & Eich, 2004). Prior research has consistently found that *self-distancing*, that is adopting a third-person, observer-like perspective on negative events, reduces emotional reactivity by evoking emotionally cooler appraisals of negative events without eliciting avoidance (Ayduk & Kross, 2010; Kross & Ayduk, 2008; Kross, et al. 2005). The studies we have conducted to date converge with this research, demonstrating that temporal distancing reduces negative affect by leading people to appraise their reactions to stressors as impermanent, without increasing avoidance. In fact, across our studies the distant-future conditions reported engaging in *less* avoidance (albeit not always significantly less) than the near-future ones. This finding bolsters the idea that psychological distancing facilitates reappraisal rather than maladaptive avoidance of negative experiences.

Limitations and Future Research

Converging evidence from a number of laboratories demonstrates that the ability to appraise negative events from a broader perspective—be it a self-distanced, temporally-distanced, or otherwise expanded vantage point—reduces emotional distress (e.g., Kross et al., 2005; Rude et al., 2011; Schartau et al., 2009). One important remaining question is how the efficacy of temporal distancing and similar perspective-broadening reappraisal tactics compares to that of other reappraisal tactics, such as efforts to construe upsetting situations in “unemotional” or “technical” terms (e.g., Gross, 1998; Richards & Gross, 2000; Sheppes & Meiran, 2007) or to positively reframe them (e.g., Shiota & Levenson, 2012). These comparisons are difficult to make at present because in many reappraisal studies participants are either instructed to implement a broad reappraisal goal, such as to down-regulate negative affect (e.g., McRae et al., 2008; Urry, 2010), or are alternatively asked to implement a single reappraisal tactic (e.g., Ray, Wilhelm, & Gross, 2008; Richards, Butler, & Gross, 2003). Research that directly compares the efficacy of two or more reappraisal tactics for achieving similar reappraisal goals under similar circumstances is relatively sparse (for a similar perspective see McRae, Ciesielski, & Gross, 2012). Thus, future research which clarifies

whether and under what conditions certain reappraisal tactics are more effective than others via direct comparison would advance our understanding both of perspective-broadening reappraisal tactics and of cognitive reappraisal more broadly.

Despite the overall lack of moderation by features of the stressor or individual in Study 7, future research should examine additional boundary conditions of the emotion-regulatory benefits of temporal distancing. One critical question is whether temporal distancing reduces the distress of psychologically vulnerable individuals, such as those with clinically high levels of anxiety or depression. People with a history of anxiety and mood disorders have been found to be particularly subjectively reactive to stress (e.g., de Rooij, Schene, Phillips & Roseboom, 2010), and tend to experience poorer psychological health outcomes following stressful life events (e.g., Ellicott, Hammen, Gitlin, Brown, & Jamison, 1990; Kessler, 1997). For these reasons, it is especially important to find effective methods of helping psychologically vulnerable individuals better manage stress.

Study 7 began to explore whether temporal distancing has clinical utility by testing whether it reduced the distress of individuals with higher, albeit not clinically high levels of worry and depressive symptoms. While depressive symptoms did not significantly moderate the link between temporal distancing and reduced distress, temporal distancing was found to be *more* effective at reducing the distress of individuals high in worry. This finding suggests that temporal distancing may have more pronounced benefits for people prone to emotional distress, a possibility consistent with prior theory and research on the emotion-regulatory consequences of perspective-broadening reappraisal strategies (Kross & Ayduk, 2009; Kross, Gard, Deldin, Clifton, & Ayduk, 2012; Schartau et al., 2009). If future research demonstrates that temporal distancing techniques work effectively for clinical populations, they could easily be incorporated into existing training interventions and therapy protocols.

Because Study 7 utilized a student and relatively young Mturk sample, future research is also needed to investigate whether the benefits of temporal distancing apply across a wider age spectrum. It seems reasonable to expect the psychological consequences of viewing stressors from a broader future time perspective may vary according to whether one is near the beginning versus the end of their lifespan. For example, someone in their early twenties may look forward to the distant future with great optimism and hope, whereas someone in their seventies or eighties may feel trepidation or sadness about aging. This possibility can be explored in the future by studying temporal distancing within samples of older individuals.

A final interesting extension of the present research would be to examine how temporal distancing affects reactions to positive life events. Legend has it that the proverb “This too shall pass” came into being when a monarch requested a ring that would make him happy when he was sad and sad when he was happy, and received one engraved with this saying (Keyes, 2007). This fable raises the question of whether temporal distancing from positive events reduces positive affect through the same pathway that distancing from negative events reduces negative affect—by highlighting their impermanence. At face value, it seems plausible that focusing on the impermanence of happy experiences could diminish enjoyment of them. This possibility is also consistent with our Study 3 finding that attending to the impermanence of a good exam score increased negative affect. However, it is also possible that the awareness that positive experiences are fleeting may motivate people to more fully savor and appreciate these experiences while they last. Future research that explores these possibilities would both expand our understanding of the effects of psychological distancing on emotional experiences and contribute to the growing literature on positive psychology.

Concluding Comments

Do the lessons conveyed by folk sayings like “this too shall pass” provide more than cold comfort to people facing personal difficulties? The results of the present research suggest that they do, and point to temporal distancing as an important strategy for heightening people’s awareness that their reactions to distressing events tend to be temporary. Across our studies temporal distancing was linked to more adaptive patterns of emotional responding to a variety of stressful life events. These findings highlight the importance of examining the effects of temporal distancing within clinical samples, as well as exploring whether temporal distancing affects longer-term mental health and well-being.

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Footnotes

¹ In Studies 1a and 4, the variable “guilty” was inadvertently omitted from this emotion measure. This omission likely had little substantive impact on the results, as the correlation between versions of the scale in which this item was included versus omitted was higher than .99 in all studies that properly included this item.

² In preliminary analyses, we explored whether gender moderated any of the key findings across any of our studies. It did not, with the exception of one finding, localized in Study 2. Since this single interaction was not predicted, did not replicate across studies, and was not theoretically relevant, gender is not discussed in the paper.

³ For information on the associations between the four measured mediators in this and all subsequent studies, please see Appendix B.

⁴ Study did not interact with condition to predict any of the outcomes, except concrete impact, $F(1, 212) = 4.78, p = .03$. Examination of this interaction revealed that across both studies, the distant-future condition focused less on the concrete impact of their stressor than the near-future condition, but that this effect was more pronounced in Study 1a than in Study 1b, where it reached only marginal significance, $F(1, 134) = 3.61, p = .06$.

⁵ The rate of consent is lower here than in Study 3 because Study 3 participants were asked for their consent at the time of the study, whereas Study 4 participants were asked for their consent several months after the study ended, and many participants did not respond to this request.

⁶ In addition to controlling for elapsed time in the reported results, we also controlled for the following variables in our initial analyses: academic contingencies of self-worth, implicit theories of intelligence, neuroticism, and baseline affect. These variables were entered individually in a second step of the regression equations. All of the main and interactive effects of impermanence focus on the dependent variables remained significant when controlling for these variables. See Appendix A for additional details.

Table 1

Means (and Standard Deviations) of Outcomes by Condition for the Combined Sample 1a & 1b Data

	Near Future	Distant Future	Control
Manipulation check	2.26 (1.34) ^a	5.82 (1.68) ^b	4.26 (1.72) ^c
Negative affect	3.23 (0.69) ^a	2.73 (0.77) ^b	3.20 (0.65) ^a
Impermanence	-0.42 (0.75) ^a	0.46 (1.03) ^b	-0.07 (1.03) ^c
Future idealization	-0.50 (0.82) ^a	0.54 (0.94) ^b	-0.04 (0.90) ^c
Concrete impact	0.30 (1.04) ^a	-0.39 (0.79) ^b	0.15 (1.05) ^a
Avoidance	3.45 (1.57) ^a	2.73 (1.57) ^b	3.43 (1.62) ^a

Note. Reported means are adjusted for the covariates, “elapsed time” and “study.”

Means in a given row with different superscripts differ from one another at $p < .05$, two tailed.

Table 2

Means (and Standard Deviations) of Outcomes by Condition for Studies 1a and 1b Separately

	Study 1a		Study 1b		
	Near Future	Distant Future	Near Future	Distant Future	Control
Manipulation check	1.61 (0.86) ^a	5.34 (1.87) ^b	2.55 (1.55) ^a	6.06 (1.41) ^b	4.49 (1.72) ^c
Negative affect	3.53 (0.63) ^a	3.06 (0.71) ^b	3.09 (0.67) ^a	2.60 (0.76) ^b	3.05 (0.65) ^a
Impermanence	0.17 (0.37) ^a	1.09 (1.08) ^b	3.88 (1.31) ^a	4.85 (1.24) ^b	4.28 (1.42) ^a
Future idealization	0.04 (0.13) ^a	0.67 (0.94) ^b	4.31 (1.65) ^a	6.11 (0.72) ^b	5.12 (1.34) ^c
Concrete impact	0.83 (0.89) ^a	0.09 (0.18) ^b	4.39 (1.23) ^a	3.83 (1.49) ^a	4.37 (1.49) ^a
Avoidance	3.91 (1.60) ^a	3.11 (1.78) ^b	3.21 (1.48) ^a	2.58 (1.32) ^b	3.23 (1.62) ^a

Note. Reported means are adjusted for the covariate “elapsed time”. We also indicate significant between-group differences *within* studies with superscripts. Within-study means with different superscripts differ from one another at $p < .05$, two tailed.

Table 3

Means (and Standard Deviations) of Outcomes by Condition for Study 2

	Near Future	Distant Future
Manipulation check	2.69 (1.70) ^a	6.35 (1.32) ^b
Negative affect	3.11 (0.67) ^a	2.80 (0.86) ^b
Impermanence	4.20 (1.60) ^a	5.48 (1.22) ^b
Future idealization	4.99 (1.32) ^a	6.19 (1.14) ^b
Concrete impact	4.84 (1.22) ^a	4.32 (1.78) ^a
Avoidance	3.20 (1.60) ^a	2.91 (1.55) ^a

Note. Reported means are adjusted for the covariate, “elapsed time”. Means in a given row with different superscripts differ from one another at $p < .05$ two-tailed, except for negative affect, where $p = .075$.

Table 4

Means (and Standard Deviations) of Outcomes by Condition for Study 3

	Distant-future	Future-control	Own-strategy control
Manipulation check	5.89 (1.58) ^a	3.33 (2.01) ^b	2.83 (1.55) ^b
Negative affect	2.28 (0.42) ^a	2.64 (0.75) ^b	2.75 (0.89) ^b
Impermanence	5.21 (1.18) ^a	4.12 (1.43) ^b	3.80 (1.58) ^b
Future idealization	6.03 (1.09) ^a	3.39 (1.76) ^b	3.47 (1.79) ^b
Concrete impact	3.66 (1.90) ^a	3.65 (1.76) ^a	3.51 (1.38) ^a
Avoidance	2.14 (1.25) ^a	2.28 (1.19) ^a	2.33 (1.15) ^a
Final exam score	84.19 (11.91) ^a	82.94 (12.76) ^a	87.87 (8.35) ^a

Note. Reported means are adjusted for midterm exam score and elapsed time. Means in a given row with different superscripts differ from one another at $p < .05$, two tailed.

Figure 1. The effect of condition on emotional reactions to midterm exam scores.

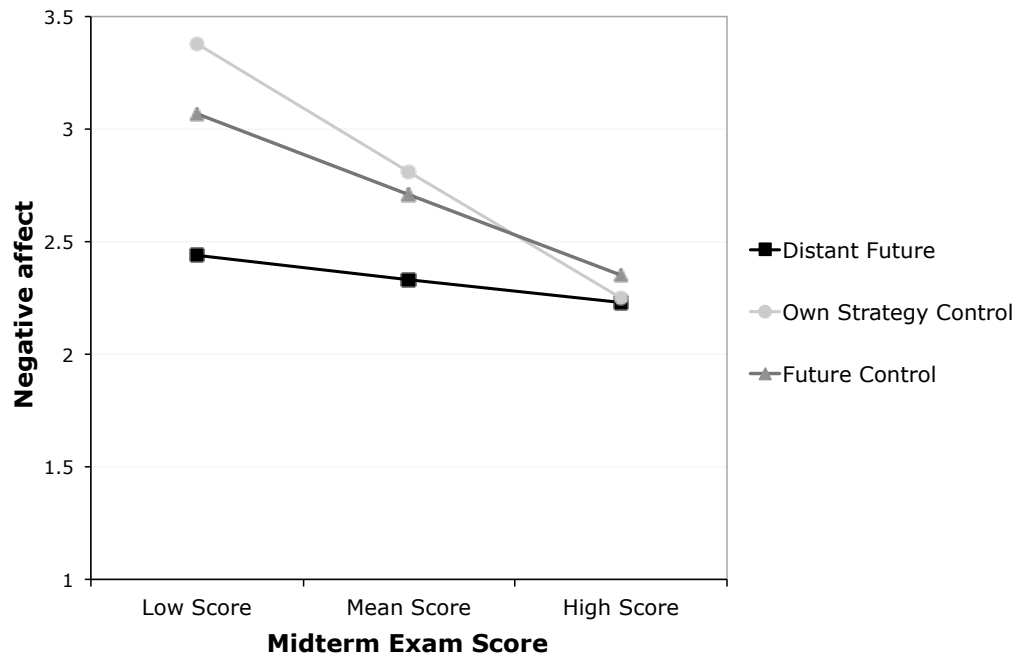


Figure 2. The relationship between impermanence focus and emotional reactions to midterm exam scores.

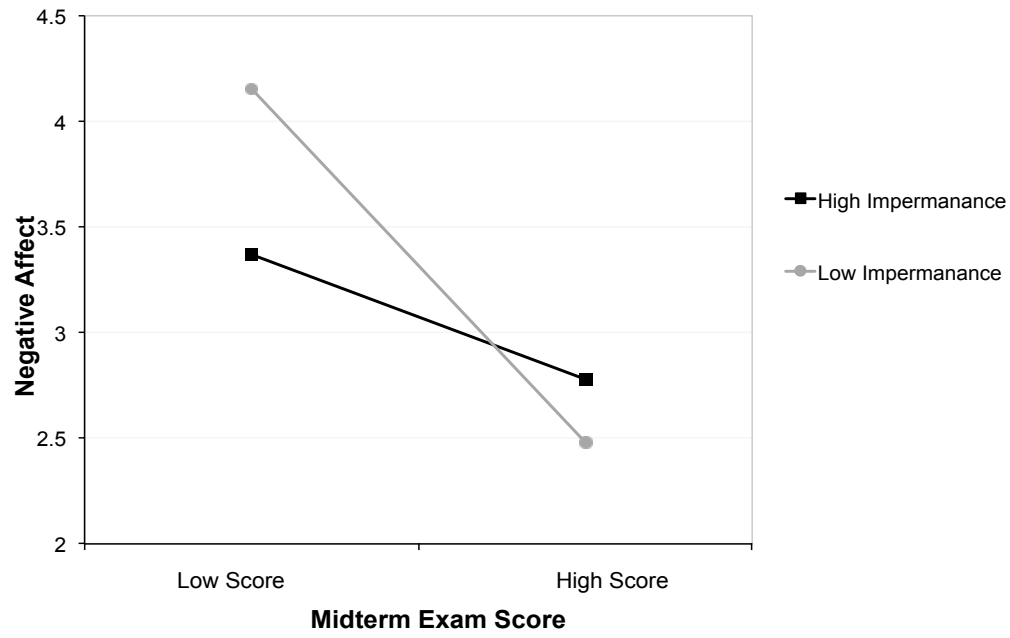


Table 5

Zero-order Correlations of Impermanence Focus with Study 5 Dependent Variables

	Impermanence Focus
Perceived stressor impact (composite)	-.30*
Emotional reliving of stressor	-.23*
Perceived present impact of stressor	-.24*
Predicted future impact of stressor	-.29*
Well-being (composite)	.26*
Short BDI	-.22 [†]
Short PSWQ	-.27*
SWL	.27*
Affect balance	.11
Elapsed time	-.03

Note. Correlations do not change in value when controlling for elapsed time.

* = $p < .05$ & [†] = $p < .10$

Table 6

Means (and Standard Deviations) of Outcomes by Condition for Study 6

	Permanence	Impermanence	Own-strategy control
Negative Affect	3.45 (0.63) ^a	2.94 (0.57) ^b	3.29 (0.70) ^a
Impermanence	3.97 (1.47) ^a	4.84 (1.19) ^b	3.89 (1.50) ^a
Future idealization	4.42 (1.84) ^a	4.99 (1.39) ^a	5.15 (1.24) ^a
Concrete impact	3.06 (1.17) ^a	2.92 (1.08) ^a	3.28 (1.07) ^a
Avoidance	4.10 (1.39) ^a	3.78 (1.42) ^a	3.72 (1.60) ^a
Temporal Perspective	3.81 (1.74) ^a	4.45 (1.80) ^a	3.79 (1.70) ^a

Note. Reported means are adjusted for the covariate “elapsed time”. Means in a given row with different superscripts differ from one another at $p < .05$, two tailed.

Table 7

Means (and Standard Deviations) of Stressor Appraisal Dimensions for Study 7

<u>Stressor Appraisal Dimensions</u>	<u>Mean (SD)</u>
Predicted duration of stressor/stressor consequences	3.92 (3.41)
Confidence in duration predictions	3.47 (1.09)
Perceived control over stressor time course and consequences	2.94 (1.05)
Extent to which life is expected to “return to normal”	3.16 (1.31)
Perceived reversibility	2.96 (1.32)
Extent to which stressor is expected to get better vs. worse with time	3.56 (1.11)
Perceived recurrence	2.99 (1.21)
Perceived present severity	3.57 (0.89)
Predicted future severity	2.69 (1.11)

Figure 3. Interaction between temporal distance and worry to predict negative affect.

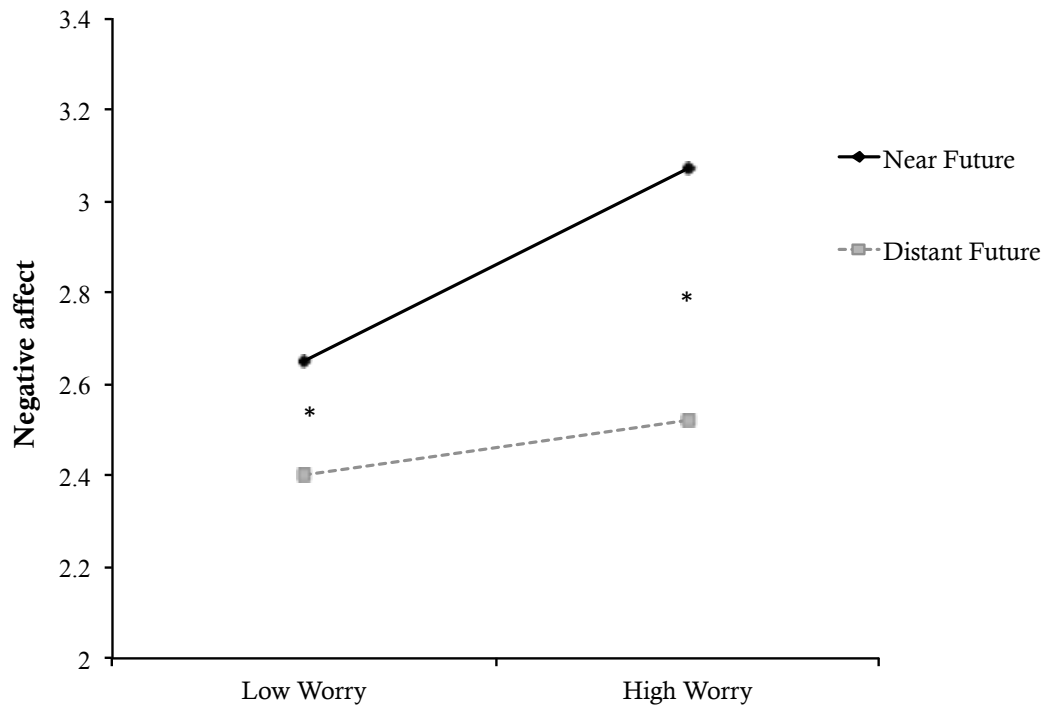


Figure 4. Interaction between temporal distance and perceived potential for life to return to normal to predict negative affect.

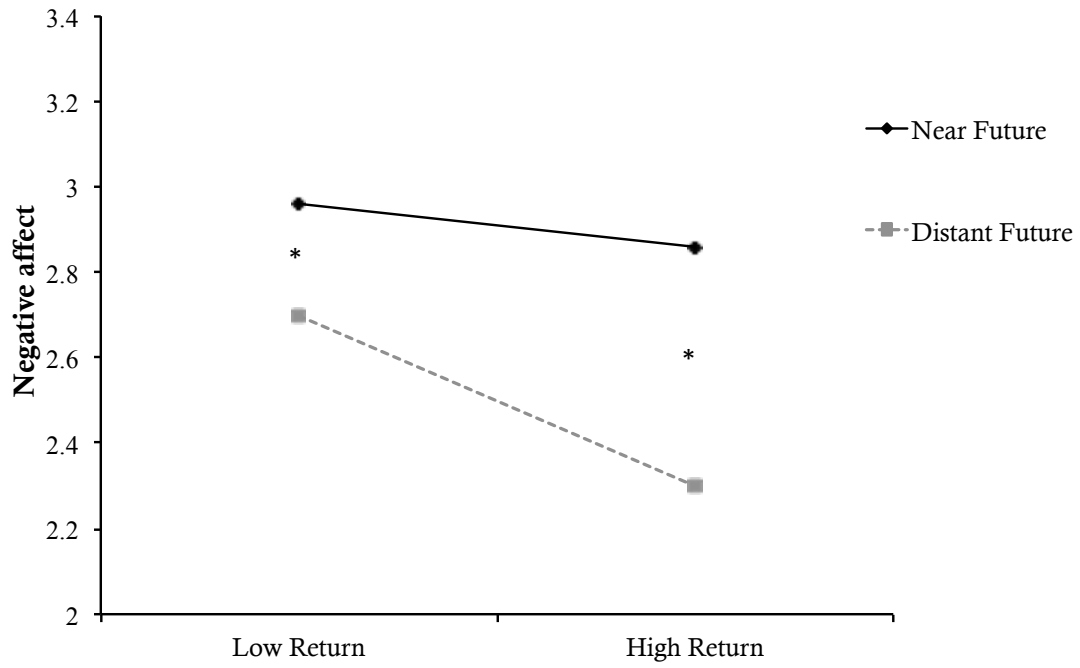
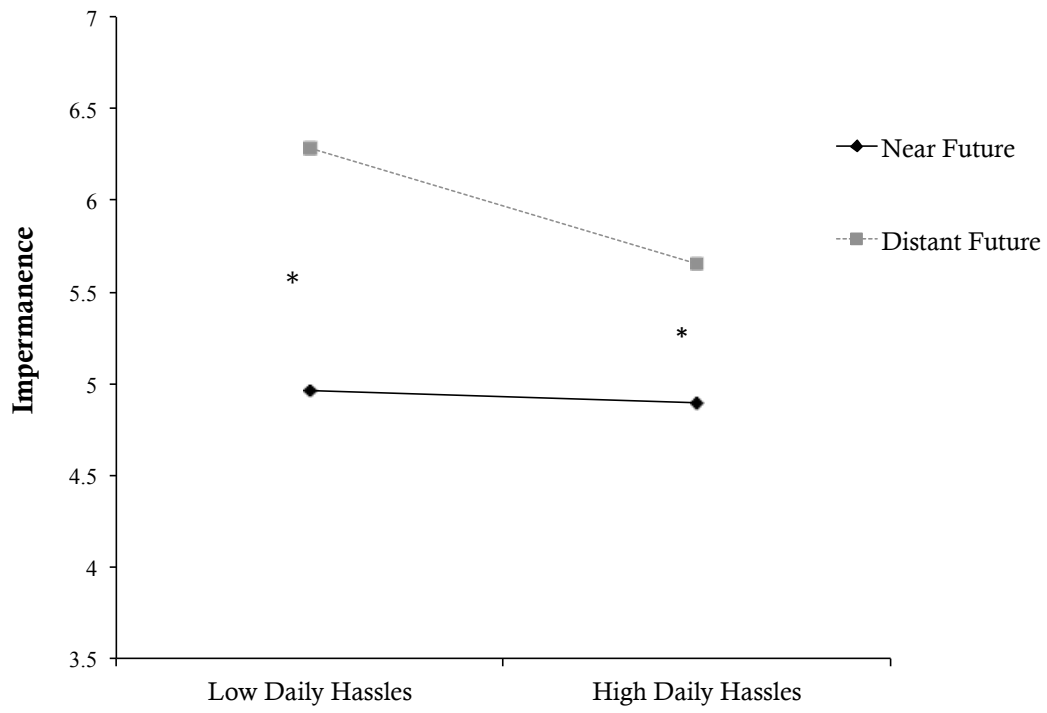


Figure 5. Interaction between temporal distance and daily hassles to predict impermanence.



Appendix A: Additional Covariates by Study

We included a number of additional covariates in our preliminary analyses, which vary from study to study, and are described in detail by study below. Controlling for these additional covariates across the studies does not change the basic pattern of the reported findings. All of the reported significant results also remained significant when no covariates were included with one exception. In the combined Study 1a and 1b data, the significant contrast between the future-control and near-future group to predict impermanence drops from significance to non-significance ($F = 2.51, p = .11$) when the covariate “elapsed time” is excluded. However, the more critical contrasts of the near-future and control groups to the distant-future group both remain significant when excluding this covariate.

Studies 1a and 1b. We included two additional covariates in Studies 1a and 1b. We controlled for participants’ pre-manipulation distress over their respective stressors to ensure that the conditions did not differ on this important background variable due to chance. We also controlled for post-manipulation visual self-distancing to rule out the possibility that temporal distancing lowers distress by causing individuals to adopt a more visually distanced perspective on their stressors.

Pre-manipulation distress. At the beginning of the laboratory session, prior to the experimental manipulation, participants answered the following four questions assessing their pre-manipulation levels of distress over their stressor: “How much distress is this problem causing you *now*, regardless of when it arose?”; “To what extent has this problem affected your day-to-day life since it arose?”; “To what extent have you dwelled on this problem since it arose?”; and “How serious or severe is this problem in your opinion?” Participants’ responses to these questions on a 1 (*not at all*) to 5 (*a great deal*) scale were averaged to form an index of pre-manipulation distress, 1a: $\alpha = .71, M = 3.36, SD = 0.66$; 1b: $\alpha = .81, M = 3.43, SD = 0.78$.

Self-distancing. The extent to which participants adopted an observer-like, visually “self-distanced” perspective when reflecting on their stressor was measured after the experimental manipulation with the following two items, adapted from Ayduk and Kross (2010): “As you reflected on your stressor, to what extent did you feel like you were an immersed participant in the experience (i.e., imagining your life through your own eyes as if you were living it) vs. a distanced observer (i.e., imagining your life as though you were an outside observer to it)?” (1 = *predominantly an immersed participant* to 7 = *predominantly a distanced observer*) and “As you visualized your problem in your mind’s eye, how far away from the scene were you?” (1 = *very close, saw it through my own eyes* to 7 = *very far, saw it as if an observer*). Participants responded to these questions with regards to how they visualized their stressor during the reflection period. Participants’ responses were averaged to form a single measure of self-distancing, 1a: $\alpha = .69, M = 3.63, SD = 1.50$; 1b: $\alpha = .72, M = 3.32, SD = 1.48$.

Study 2. Study 2 included the covariate *pre-manipulation distress* which was measured in a manner identical to Studies 1a and 1b, $\alpha = .81, M = 3.38, SD = 0.78$.

Study 3. As in Studies 1a and 1b, in Study 3 we measured participants’ baseline emotional reactions to the event upon which they reflected (i.e., their midterm exam) and their post-manipulation visual self-distancing. Since participants in Study 3 received a wide range of

midterm scores—from very low to very high—we asked participants to rate how negative vs. positive they felt about their midterm scores, rather than their level of distress.

Pre-manipulation midterm-related emotions. Participants' pre-manipulation feelings about their midterm performance were measured by the single item: "How did you feel about your performance immediately after receiving your grade?" (1 = *very negative* to 7 = *very positive*), $M = 4.28$, $SD = 2.04$. Participants' pre-manipulation exam-related emotions were highly correlated, and largely redundant with their exam scores ($r = .76$), and thus we chose not to include this covariate in our preliminary analyses.

Self-distancing. The extent to which participants adopted a visually self-distanced perspective on their stressful experience was measured in a manner identical to Studies 1a and 1b, $\alpha = .75$, $M = 3.29$, $SD = 1.47$.

Study 4. In Study 4, we controlled for four variables that could potentially account for the observed associations between impermanence and our outcomes, specifically 1) academic contingencies of self-worth, 2) implicit theories about intelligence, 3) neuroticism, and 4) baseline affect. For example, it seemed plausible that students higher in trait neuroticism or state negative affect may be both *less* likely to consider that their reactions to a poor midterm score are impermanent and *more* likely to have strong emotional reactions to a poor score, accounting for the apparent link between impermanence and distress. It is also possible that implicit theories about intelligence (i.e., beliefs about the stability of intelligence) and impermanence focus within academic contexts may be highly overlapping, with implicit theories predicting emotional reactions to academic performance more powerfully. Although it was not possible to control for all potential third variables, in controlling for these four we wished to rule out some of the most apparent alternative explanations. These variables were entered individually in a second step of the regression equations described in the manuscript.

Academic contingencies of self-worth. Lawrence and Crocker's (2009) six-item academic contingencies of self-worth measure was used to assess the extent to which participants staked their self-worth on their academic performance (e.g., "I would feel like a loser if I were to receive a poor grade in a class"). Participants' responses to these items on a 7-point scale (1 = *strongly disagree* to 7 = *strongly agree*) were averaged, $\alpha = .86$, $M = 4.12$, $SD = 1.03$.

Implicit theories of intelligence. An eight-item implicit theory of intelligence measure (Levy, Stroessner, & Dweck, 1998) was used to index the belief that people's level of intelligence is fixed versus malleable. Participants rated their agreement with items such as "Your intelligence is something about you that you can't change very much" on a 7-pt scale (1 = *strongly disagree* to 7 = *strongly agree*). Items were reversed as appropriate and then averaged, such that a higher score indicates a more fixed view of intelligence, $\alpha = .96$, $M = 3.35$, $SD = 1.29$.

Neuroticism. The neuroticism subscale of the 44-item Big Five Inventory (John, Naumann, & Soto, 2008) was included. Participants' responses to items on a 5-point scale (1 = *disagree strongly* to 5 = *agree strongly*) were reversed when appropriate and then averaged, $\alpha = .81$, $M = 3.07$ and $SD = 0.76$.

Baseline affect. The single-item Self Assessment Manikin (Lang, 1980) was used to measure participants' affective state prior to reflecting on their exam performance. Participants indicated which of a set of nine images best captured how they were feeling at that moment (1 = *very unhappy* to 9 = *very happy*), $M = 5.72$, $SD = 1.51$.

Study 5. In testing our Study 5 predictions, we also controlled for coder-rated objective severity of each participant's stressor. We did so to minimize the possibility that any observed associations between impermanence and psychological well-being were an artifact of the tendency to focus more on the impermanence of less serious stressors.

Objective event severity. Four independent coders assessed the objective severity of participants' written descriptions of their stressor on a 4-pt scale (1 = *a trivial stressor that is small in scope (e.g., getting a lower than hoped for grade on a quiz)* to 4 = *a life altering and highly distressing event (e.g., the death of a loved one)*). Coders' ratings were highly reliable, ICC = .90, and were averaged to construct a severity rating for each event, $M = 2.29$, $SD = .76$.

Study 6. Study 6 included the same covariates as Studies 1a and 1b.

Pre-manipulation distress. Participants' pre-manipulation level of distress surrounding their stressful experience was measured in a manner identical to Studies 1a and 1b, $\alpha = .84$, $M = 3.45$, $SD = 0.83$.

Self-distancing. The extent to which participants adopted a visually self-distanced perspective on their stressful experience was measured in a manner identical to previous studies, $\alpha = .79$, $M = 3.00$, $SD = 1.52$.

**Appendix B: Within-Study Correlations Between Mediators and
Meta-analytic Summary of Cross-Study Correlations**

Table 1 below reports the within-study correlations between each pair of proposed mediators for Studies 1a, 1b, 2, 3, and 6.

To increase both the statistical power and the reliability of the estimated associations between the mediators, we also performed a meta-analysis on the combined data across these five studies. Following Hedges & Olkin (1985), in order to obtain effect size estimates for the associations between our mediators across studies we transformed our within-study effect sizes (i.e., within-study r 's) to z scores using Fisher's r -to- z transformation. These transformed effect sizes were then weighted by their respective sample size and averaged across studies to yield a single average weighted effect size for the relationship between each pair of mediator variables (see the table immediately below). The significance value for these average weighted effect sizes was computed by dividing each effect size by its respective standard error. This yielded a z test statistic with a corresponding p -value (for a similar approach, see Zayas & Shoda, 2005).

Table 1 of Appendix B: *Within-Study Correlations Between Mediators and Meta-analytic Summary of Cross-Study Correlations*

	1a	1b	Study			Meta-analytic r
			2	3	6	
Impermanence & Future Idealization	.16	.37**	.55**	.37**	.21*	.35**
Impermanence & Concrete Impact	-.38**	-.22**	.08	.19 [†]	-.03	-.08
Impermanence & Avoidance	-.30**	-.05	-.06	.21*	.01	-.03
Future Idealization & Concrete Impact	-.25**	-.03	.06	.32**	.33**	.10*
Future Idealization & Avoidance	-.03	.03	-.20	.01	-.05	-.04
Concrete Impact & Avoidance	.15	.23**	.14	-.003	.10	.13**

** = $p < .01$, * = $p < .05$